

Communities in Transition

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COMMUNITIES IN TRANSITION

The Circum-Aegean Area During the 5th and 4th Millennia BC



EDITED BY

Søren Dietz, Fanis Mavridis, Žarko Tankosić and Turan Takaoğlu



Monographs of the Danish Institute at Athens, Volume 20



COMMUNITIES IN TRANSITION

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THE CIRCUM-AEGEAN AREA DURING THE 5TH AND 4TH MILLENNIA BC

Edited by

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 **OXBOW | books**
Oxford & Philadelphia

Published in the United Kingdom in 2018 by

OXBOW BOOKS

The Old Music Hall, 106–108 Cowley Road, Oxford OX4 1JE

and in the United States by

OXBOW BOOKS

1950 Lawrence Road, Havertown, PA 19083

© Oxbow Books and the individual authors 2018

Hardback Edition: ISBN 978-1-78570-720-9

Digital Edition: ISBN 978-1-78570-721-6 (epub)

A CIP record for this book is available from the British Library and the Library of Congress

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Printed in the United Kingdom by Short Run Press

Typeset in India by Lapiz Digital Services, Chennai

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Front cover: Ships carved into a rock from the site of Strophilas on Andros (photograph from the personal archive of C. Televantou); drawing of a rock carving from the main bastion on the wall at the site of Strophilas on Andros representing a procession of ships (drawing by C. Televantou).

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Preface

The volume before you represents a collective effort that brings together scholars from different countries and backgrounds united by a common interest in the transition between the Neolithic and the Early Bronze Age in the lands around the Aegean. We chose a title containing the word “communities” because we think that the changes that occurred in the 5th and 4th millennia in south-eastern Europe and western Anatolia changed the way people were organised, how they understood their place in society, and how they interacted with other social entities on a day-to-day basis. The Neolithic community was transformed, at some places incrementally and at others rapidly, into one that was, by the end of this period, more similar to what we would commonly associate with the Bronze Age.

Terminology used to describe this period presented a special topic for consideration. Many different names (e.g. Final Neolithic, Chalcolithic, Eneolithic, Late Neolithic [I]–II, Copper Age) are used by colleagues with different scholarly backgrounds. To some extent, they reflect diverse archaeological evidence from varied geographical regions. During this long heterogenous period spanning two millennia, developments occurred that led to significant changes in material culture, use of space, adoption of metallurgical practices, establishment of far-reaching interaction and exchange networks, and increased social complexity. The 5th and 4th millennia BC transition, notwithstanding the variability inherent in a section of prehistory this long, is one of inclusions, entanglements, connectivity, and exchange of ideas, raw materials, finished products and, quite possibly, worldviews and belief systems.

Largely, we kept the nomenclature used for regional

archaeological cultures to show the variety and differences related to the period. However, after some deliberation, we settled on using the general term “Later Neolithic Stages” (not to be confused with the Late Neolithic phase) to describe the chronological focus of the conference itself. By using this somewhat neutral term, we wished to both advertise the focus on the fourth and later part of the 5th millennium as crucial for understanding the entire period and the intention to not include the earlier phases of the Late Neolithic or the developed phases of the Early Bronze Age, unless particularly pertinent to the discussion. The title of the volume, we felt, should be even more neutral and inclusive, which is the reason why we settled on the definition of the period in purely chronological terms. Inclusiveness was also high on the list of our priorities when organising the conference; we selected participants based purely on the criterion of scientific contribution.

Most of the papers presented here are multifaceted and complex in that they do not deal with only one topic or narrowly focus on only a single line of reasoning or group of data. Hence, it was difficult to section them off into meaningful chapters based exclusively on their thematic content. After much consideration, we settled on geography as the overarching principle by which to structure this book, as being the least contentious and controversial. Hence, the papers are arranged in a roughly north–south direction (i.e., the Balkans, northern Greece and Thessaly, west, central, and southern Greece, the Aegean Islands, Crete and Cyprus and west Anatolia), preceded by introductory and synthetic contributions that either transcend regional divisions, span more than one region or address general topics related to this period. We, however, provide an overview of the papers according to their topical and thematic character in the introduction to this volume.

Acknowledgements

The list of people who contributed to the success of the conference, which had more than 130 participants, and the succeeding volume of this size and scope is necessarily very long. Unfortunately, we cannot thank everyone individually here but we are truly grateful to them all and we strongly believe that without them this work would not have been possible.

We, of course, first and foremost thank all the participants and contributors to the conference for finding the time in their busy schedules to take part in the event. We wish to particularly thank the Danish Institute at Athens, which provided institutional support and a side venue for the conference and for recognising its scholarly potential. Dr Popi Sarri was irreplaceable as the conference secretary and her tireless and enthusiastic work was essential for holding together the various practicalities of conference organisation.

We thank Dr Maria Vlazaki Andreadaki, the current General Secretary of Culture at the Hellenic Ministry of Culture and Sports, who greeted the conference on behalf of the Ministry, and the Embassy of the Republic of Turkey and the Royal Danish Embassy in Athens for organising a reception for all conference participants.

The Acropolis Museum at Athens provided the main conference venue. Our volunteers, namely Paschalis Zafeiriadis, Vasiliki Anevlavi, Athina Gerochristou, Alexandra Koutsoulou, Dimitris Lambropoulos, Georgia Loukopoulou, Eleni Papadopoulou, Irini Paraskevopoulou and Zaneta Tsambi ensured the smooth running of the conference.

An excellent pool of anonymous reviewers, consisting of an international group of scholars established in the field,

safeguarded the high scientific standards of the contributions to this volume. Ms Danai Vlachou was responsible for the visual identity of the conference, a job she performed marvelously, and our proofreader, Ms Freya Evenson, is responsible for the high linguistic quality in papers mostly written by authors whose first language is not English.

Economic support for the conference was provided by The Danish Research Council for the Humanities, INSTAP, the Institute of Cross-Cultural and Regional Studies, University of Copenhagen and the Danish Institute at Athens. We are grateful for their support and understanding. The publication of this book was sponsored by INSTAP, the Danish Institute at Athens, Consul General Gösta Enboms Foundation, and the Department of Cross-Cultural Studies, University of Copenhagen.

We thank our colleague Christina Televantou for graciously providing the images from her excavation project at Strophilas on Andros to use for the cover of this book.

And finally, the members of the Organising and Scientific Committees provided invaluable advice and served as a pool of reviewers for the paper contributions.

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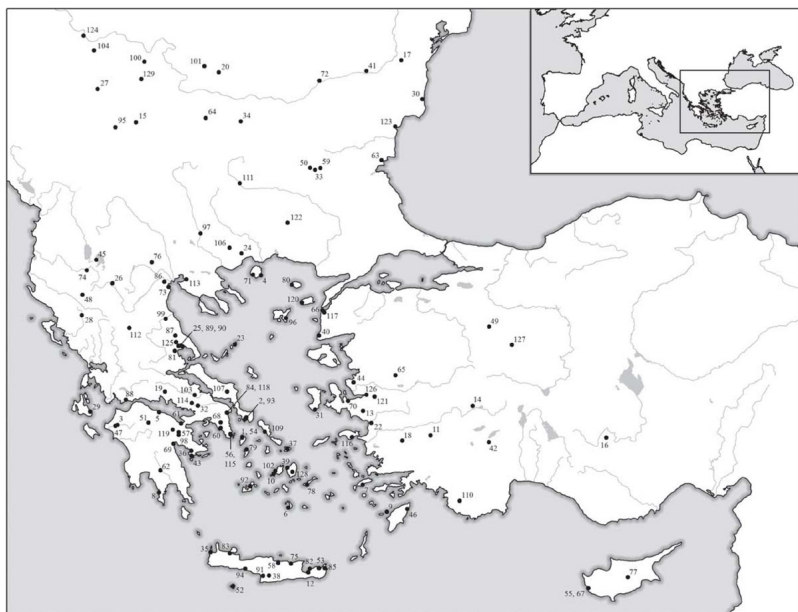
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List of sites



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Introduction

As emphasised in the preface, most of the presentations in this volume are multifaceted and complex and the suggested thematic organisation that follows should be considered as an attempt to supply the reader with a brief practical companion to the volume, organised according to the following topical rather than geographical headings:

- Chronology, cultural affinities, and synchronisation;
- Material culture: from production and technology to circulation, consumption, use and meaning;
- Changing social structure and economy;
- Inter- and intra-site space use, settlement patterns, caves; and
- Site reports and regional studies.

The paper by *C. Renfrew*, based on his keynote lecture at the conference, discusses the introduction of the term Final Neolithic in the early 1970s following the new chronological realities established by the radiocarbon revolution and particularly the second radiocarbon revolution. The considerable quantity of new data produced since the 1970s provided fuel for reconsideration and for the creation of an updated view of the later Neolithic communities in the circum-Aegean area and the emergence of Bronze Age civilisations. As an interesting preliminary conclusion, Renfrew considers that “the perception of a gap or ‘missing millennium’ over the time span 4500–3500 BC may be seen as an illusion. It arises from the decline in the Aegean of one settlement type, the tell or magoula, which ... [is] replaced by a very different phenomenon, the proto-urban coastal centre in the centuries before 3000 BC, as the metal trade developed.”

In his introductory contribution to the volume, *K. Kotsakis*

discusses the phenomenon of the “striking gap towards the end of the 5th millennium” observed in Greece and the circum-Aegean area, and the possible causes behind this phenomenon. In the new communities created during that time, social memories and cultural practices of the past were forgotten, organised villages with well-established and extensive trade and communication networks were dissolved. Additionally, ancient raw material resources, for instance copper ores, were replaced by metal from new quarries, while at the same time new metals (silver and arsenic) and new tool types (daggers) were introduced. Kotsakis proposes that the emerging new ways of life were connected to a breakdown of the traditional “social structures in the communities, allowing for different life trajectories.” It is of interest that these transformations are of different character in the communities of the North, which “chose to re-establish some form of traditional collective life, while in the South, they followed the new road all the way.”

Chronology, cultural affinities and synchronisation

The radiocarbon revolution updated our understanding of time and of change over time, which together with the engaging discussion on the ways we see and interpret archaeological evidence as well as the accumulation of analytical data changed the way we interpret and understand past societies.

Within this section, *M. Kufel* and *Ł. Pospieszny* demonstrate continuities and discontinuities in habitation patterns in the transitional period from the late 5th millennium to the Early Bronze Age of the 3rd millennium BC. They base their work on a statistical modeling of 302 published ^{14}C dates from SE Balkan sites dividing the geographical area under consideration into eight individual regions. Their study demonstrates that chronological gaps (in ^{14}C dates) in the 4th millennium are evident in all regions; however, these gaps are not contemporary and not of the same span of time in all cases.

New data from south-east Albania comes from the research conducted at the flat-extended site of Kallamas in the Corçe basin. Well-defined stratigraphic contexts together with the use of ^{14}C dating place the duration of the site in a period encompassing the Middle and the Late Neolithic phases. *C. Oberweiller, G. Touchais* and *P. Lera* offer an overview of their research and correlate their data with the available evidence from other regions.

Moving to the Aegean, *J. Coleman* suggests a change in terminology from the Greek Chalcolithic/Final Neolithic/Late Neolithic II period to a concept that he refers to as Chalcolithic (4500–4000 BC), transitional (4000–3600 BC) and Proto-Bronze Age or EB IA (3600–3100 BC). He explains the radical changes in material culture that define his phases (mainly) by migrations from the Pontic-Caspian area. The creation of the proto-Bronze Age societies around 3600 BC is, thus, considered the result of an invasion of (probably) proto-Indo-European speaking population groups related to the Maikop and Usatovo groups in the Pontic/Caspian area, whose language later develops into Greek. This approach is supported by a systematic survey of 256 published ^{14}C dates by *Y. Facorellis*, which is also the most updated list of ^{14}C dates from Greek sites for the time span in question.

The beginning of the Final Neolithic/LNII is traditionally, in pottery terms, defined by the appearance of pattern burnished decoration. In the Peloponnese, the Greek Mainland and the Western Aegean, this decoration is evidently not found earlier than 4300/4200 BC. Small pastoral communities situated in mountainous areas are characteristic for the so-called Kastria/Pangali group around the Corinthian Gulf, with pottery decorated with incisions in the so-called Prosymna incised style. Obsidian and radiolarite used for chipped stone tools are also characteristic. The dating of the Pangali assemblage to slightly earlier than the appearance of pattern burnished ware indicates that important changes in the settlement patterns as well as in the use and meaning of the material culture related to the social, economic

and ideological structure of Neolithic societies seem to be present even earlier than originally thought. These changes define the upcoming Final Neolithic/Chalcolithic (the latter is preferred in this particular contribution) communities. The Kastria/Pangali group seems to be related to the Chalcolithic groups of the so-called Maliq Ib/IIa horizon in SE Albania, contemporary with early Rachmani in Thessaly (*S. Dietz* and *P. Bangsgaard*).

Material culture: From production and technology to circulation, consumption, use and meaning

Craft specialisation, interaction and developed trade networks characterise the production of graphite painted pottery during the 5th millennium in the Balkans. Starting with Pietrele in southern Romania, *A. Reingruber* establishes the chronological development of the ware, beginning before 5000 BC. At the same time, she offers an overall description of the chronological framework and connections between the Balkan cultures under consideration.

The so-called ‘cult tables’ are a broad category covering a group of widely distributed symbolic objects found in Neolithic and Chalcolithic contexts in Anatolia, the Balkans and Central Europe. A considerable amount of these symbolic objects, ascribed to the Early and Late Chalcolithic horizons, were found at Tell Yunatsite in NW Thrace. While their symbolic character is evident, the concrete meaning, function and importance of the cult-tables is enigmatic (*S. Terzijska-Ignatova*).

Following a different approach, *S. Katsarou-Tzevelaki* discusses the pottery tradition in the Middle and Late Neolithic material from Theopetra Cave. She bases her analysis and conclusions on current advances in archaeological theory and material culture analysis.

The social meaning of figurines (especially the acrolithic and multi-headed types) belonging to the Dimini and Rachmani phases coming from Eastern Thessalian and Central Macedonian contexts is discussed by *S. Nanoglou*. He defines five distinct types produced

in clay, stone or both clay and stone. Dimini pottery with anthropomorphic features is defined as a specific group expressing social connectivity between past and present. Long distance trade involved the exchange of several types of raw materials and classes of artefacts of varied importance and symbolic value. These include pottery, obsidian and other stone artefacts, metals (copper and gold), and marble objects. Conical marble rhyta of the mid-5th millennium BC are found all over the Aegean and west Anatolia. An important marble workshop from the mid-5th millennium BC was found in Kulaksızlar, around 100 km from the west coast of Anatolia. A marble conical rhyton found in Grave 41 at Varna, supposed to derive from a west Anatolian workshop of this group, along with other finds indicate that there is much to be done to confirm the distribution, chronology, character, and use of this distinctive class of artefact. Indeed, new finds of two marble rhyta from cist graves at Yeşiltepe in the West Anatolian hinterland, about 400 km from the west coast, now proves that another tradition of this type of object with symbolic value also existed in the late 4th and early 3rd millennia BC (*T. Takaoğlu and A.O. Bamyacı*).

I. Gatsov and P. Nedelcheva in their contribution discuss aspects of the technological characteristics of the lithic assemblages in a region stretching from the lower Danube to the Marmara Sea during the 6th and 5th millennium BC, together with the available evidence related to the procurement and supply of raw materials. In the case of the Pietrele-Măgura Gorgana site, flint artefacts were not of local origin but from north-east Bulgarian sources. In the south-eastern Balkans and Turkish Thrace different technological processes for the production of stone tools were in operation and different sources of raw material were used.

Another site, that of Varhari in the Eastern Rhodope Mountains (dating to the middle part of the Chalcolithic, 4700–4600 BC, according to the Bulgarian cultural sequence), represents a rare case of a specialised centre for the production of stone artifacts

(tools, stone beads, polished stones) mainly intended for trade (*K. Boyadzhiev* and *Y. Boyadzhiev*).

As for southern Greece, a summary of research regarding obsidian studies and trade in the Aegean together with preliminary results from the study of material from the Alepotrypa Cave in Mani is presented by *D. Riebe*. In Crete, it is not until the late 4th millennium (FN IV, according to the terminology used by the author) that the pressure blade technologies for producing chipped stone tools become dominant, possibly reaching the island from western Anatolia. It is suggested that pressure blade technologies and the organisation of production in late 4th millennium BC Crete, together with metallurgy, actively participated in the creation of new power structures in the changing world of the Early Bronze Age (*T. Carter*).

Changing social structure and economy

In this thematic section authors apply different approaches based on both regional characteristics and broader evidence and on specific sites and material remains to explain different aspects of the economic and cultural processes that were in operation during the 5th and 4th millennia BC.

Two long-standing explanatory models, environmental and migrations, are used in two contributions to explain important settlement pattern shifts and other phenomena observable towards the second half or the end of the 5th millennium BC.

I. Aslanis sketches the scenario in which the warm, humid climate in the early 5th millennium BC is replaced by much drier conditions during the latter part of the period, resulting in population movement from the fertile plains to mountainous areas. As a result, the diet of the contemporary people became more dependent on meat; and consequently, the pastoral economies created new social dynamics.

In the case of the eastern Balkans, *P. Georgieva* reviews the evidence from the Late Chalcolithic Varna, Kodjadermen-

Gumelnița-Karanovo VI (KGK VI) and Krivodol-Salcuța cultures in an effort to explore what happened to the people who were the bearers of these cultures, as they were affected by the migration of people from outside the geographical zones under study that occurred mainly due to climatic changes.

Also in Bulgaria, *I. Merkyte* takes a different reasoning and suggests a deconstruction of the “bipolar” KGK VI/Krivodol-Salcuța complexes. She prefers to substitute smaller and highly dynamic cultural and social groups which are created based on the evidence from excavations in the area as well as through the application of network analyses with the support of statistical tools applied on chemical investigations of metal finds. According to this evidence, a more fragmented cultural landscape in Chalcolithic Bulgaria emerges. When compared with the pattern of clusters in Bronze Age societies, it appears that much tighter networks characterise the latter, thus contrasting the traditional perception of the Bronze Age in the southern Balkans as culturally segmented. It is the opinion of the author that the demonstrated networks in the Bronze Age are creative dynamic complexes connecting central Europe with the Near East.

In the Aegean, *M. Mina* suggests the disentanglement of metallurgy from an evolutionary approach which postulates a gradual advance, stimulating emerging social complexity, questioning at the same time the idea that social hierarchy necessarily indicates social complexity. This is due to the fact that recent research contradicts the division between the primitive “egalitarian” Neolithic communities and the “hierarchical” Bronze Age society. She points out that metallurgy as well as long-distance exchange, craft specialisation, high social competition, agricultural intensification and practices of conspicuous consumption are already found in the Neolithic, thus making them unsuitable to be used as markers of social complexity. The author advocates for a shift from the traditional technological determinism to a socially-informed interpretation of the

emergence of “civilisation.”

The study of ornaments from the Franchthi Cave in the southern Argolid by *C. Perlés* indicates “sharp breaks ... in the ornamental assemblages between the Middle Neolithic and the Late Neolithic on the one hand, the Late Neolithic and the Final Neolithic on the other.” Similar observations can be made for contemporaneous settlement patterns, pottery and stone and bone tools. In this respect, cultural continuity at Franchthi is considered to be difficult to support. While the Late Neolithic ornamental assemblages are different in many aspects from earlier and later ones, the Final Neolithic assemblages share many concepts with those of the earlier Early Neolithic and Middle Neolithic, pointing to the Late Neolithic as “intrusive.” This evidence may lead to interesting conclusions regarding aspects of cultural continuity between different phases of the Neolithic.

Inter- and intra-site space use, settlement patterns, caves

Several contributions discuss changing patterns of settlements as an expression of changed social and economic structures in circum-Aegean communities during the 5th and 4th millennia BC. Tell and extended sites as well as broader patterns related to the use of space inform several important parameters of the socio-economic organisation, while caves indicate particular uses which can be considered as having symbolic significance.

A methodologically interesting approach to the interpretation of long-term differences in settlement patterns is presented by *W.A. Parkinson*, *W.P. Ridge* and *A. Gyucha*. They compare data from the Hungarian Plain with Eastern Thessaly and the Peloponnese. The growth of the Thessalian tell sites from the very beginning of the Early Neolithic to the middle of the 5th millennium indicates stability and the establishment of a well-organised social network. At the same time, the relatively short-lived tell systems in the Hungarian plains were more complicated

special places without dense social networks, which were not established until well into the Bronze Age. Finally, the developments in the Peloponnese, where a genuine growth in numbers of settlements in new environmental zones does not appear until the Final Neolithic (and continues into the Bronze Age) is interpreted as a change to an agro-pastoral economy and the establishment of coastal sites included in a growing extensive trade network.

In Serbia in the central Balkans, considerable changes can be observed in settlement patterns between the mid-6th and the early 3rd millennia BC. A large number of Vinča culture settlements (ending 4600/4500 BC) are replaced by fewer sites of the Bubanj-Hum culture (ending 3900/3800 BC). Additionally, many hillfort settlements in some environmental niches which likely reflect different social and economic responses to climate changes. The pattern of settlements in the Baden/Cotofeni-Kostolac period (3200–2800 BC) is relatively closely related to the Bubanj-Hum I settlement system, despite a possible gap in habitation of almost 600 years, indicating continuity in landscape use (*A. Kapuran, A. Bulatović and D. Milanović*).

Regarding intra-site space use, the changing patterns which are evident between the LN I and LN II in Macedonia (LNI: 5400–4900 BC, LN II: 4900–4500 BC), as attested at the two sites in the Thermaic gulf, Makriyalos and Thermi, is the subject of *M. Pappa's* contribution. The changing patterns of habitation are interpreted as a development from a higher degree of communality in the earlier phase to an increasing degree of individualisation in the later.

Staying with the regional perspective, comprehensive polis/landscape surveys during the last decades have produced model examples of settlement patterns from (more or less) the entire Boeotian landscape. The abundance of information outlines a picture very similar to the one in Southern Greece and the Peloponnese, probably indicating that the same kind of adaptive

processes caused the changes in habitation structure. The earlier Neolithic settlements were focused on riverine soils suited for cultivation while the FN–EH period witnessed “an explosion of sites across the whole landscape and caused a far more dispersed settlement pattern to develop” (*J. Bintliff and K. Sarri*).

Ž. Tankosić uses results from another survey program, in the Karystos region in southern Euboea, to suggest a socially structured use of the landscape. A rather unusual situation is evident with FN/EB pottery being almost absent from sites located on arable land. Products of the chipped stone industry (mainly obsidian), which are abundant in the area, usually indicate work space rather than habitation. This patterning of data is interpreted as evidence for communal land management, with habitation space situated at the less fertile fringes of the agricultural valleys.

The use of space and its meaning in relation to the insular Aegean Neolithic sites is discussed by *F. Mavridis* in a contribution where he emphasises the opposition between what is symbolically expressed by the tell settlements and the flat extended sites. Comparing the structural and symbolic differences reflected by these two settlement types, he suggests that the flat extended settlement, which is the only type present thus far on the islands during the Neolithic outside of Crete, provided a more flexible relationship with the landscape, appropriate for the establishment of new sites on the Aegean islands.

D. Pullen, based on material coming from excavation and survey projects in the Peloponnese, especially from the recent Diros regional survey on the Mani Peninsula, the southern Argolid as well as north Corinthia, tries to explain the long-term dynamics of change in settlement patterns throughout the long period of the Late Neolithic (LN), Final Neolithic (FN) and Early Helladic I (EH) in southern Greece. A critical issue arising from this study is to explain the contrast between the long-term stable pattern of the Northern Corinthia and the fluctuating “unstable” pattern seen in the southern Argolid and elsewhere in the Peloponnese.

The dynamic change in settlement patterns between the Final Neolithic and the Early Minoan I (3700–3000 BC) on Crete is summarised by *K. Nowicki*. The beginning of this period is characterised by a dramatic change in settlement patterns. During the transition to Final Neolithic II (according to the terminology adopted in this text) around 3400/3300 BC a “demographic explosion” is evident, with increased number of sites resulting in a shift in social, economic and political orders, local “overpopulation,” and the creation of a first territorial organisation. Nowicki considers this population increase to result from migration to the island. The advanced Early Minoan I societies seem to be directly based on the social structure developed during the late Final Neolithic.

Caves

The exploration of archaeological deposits found in caves provides important information about space use and activities that are often not easily attested in open air sites. For example, the cave of Theopetra in Thessaly is a site where human activities can be traced back to the Palaeolithic. During the later Neolithic phases, the cave seems to have had a symbolic significance. Ritual use is evidenced by the presence of an unusual amount of prestige objects, many of which are imported from different cultural groups spanning a wide geographic area, while at the same time pottery that would indicate habitation is rare (*N. Kyparissi-Apostolika*).

The Sarakenos Cave, situated in the Kopais region in Boeotia, cannot but be considered a unique case in the Aegean Neolithic. Around 2000 fragments of clay figurines have been found at this site. Most of the figurines were deposited inside an opening in a level dated to LN IIa, i.e. from the late 5th millennium to around 3600 BC. The figurines, both male and female, are considered to stylistically represent a local Boeotian tradition. They are described as simply modelled, mainly representing an abstract

form of the human figure. The authors believe this cave to have been used for ritual purposes (A. Sampson and V. Mastrogiannopoulou).

A possibly similar situation is attested at the Leontari Cave, situated on Mount Hymettos in Attica. Figurines of clay and stone were found in particular contexts, under stone lined floors associated with other material remains. This provides a unique opportunity to understand the figurines' role and meaning in the changing world of the latest 5th and early 4th millennium. The symbolic character of this is considered to reflect the changing social reality and a new social order under negotiation and reconstruction (L. Karali, F. Mavridis and D. Lambropoulos).

The evidence from Drakaina Cave on Kephallonia, with layers dating to the Late Neolithic I and II (*ca.* 4900/4800–3700 cal BC), supports the great symbolic significance of the cave during this period, as argued in the previous two contributions. The synthesis of the finds and the excavation process presented here are important for understanding the space of social action during the later Neolithic phases (G. Stratouli and O. Metaxas).

Site reports and regional perspectives

The results of new research conducted at important sites and its local or regional significance are also part of this book, adding much to our efforts to understand the socio-economic characteristics of the period in question. It must be noted that many of the papers mentioned previously also contain new data.

Kozareva Magila is a very large tell site with a cemetery located on a flat plain close to the Black Sea in Bulgaria. The site belongs to the end of the KGK VI/Varna horizon and was destroyed by fire. The specialised production of pottery made up an important aspect of the site's economy. Pottery decorated with graphite paint was found at the site as well as pots tempered with crushed shells, characteristic of ceramics produced by people inhabiting the Pontic steppes at that time. Of great interest are the

copper tools and ornaments and the presence of the earliest attested knife/dagger thus far in the area (*P. Georgieva, M. Popova and V. Danov*).

The finds from the Chalcolithic tell-site of Yunatsite in the Rhodope Mountains is summarised in the contribution by *V. Matsanova and T. Mishina*. The emphasis is on the Late Chalcolithic architectural and functional features attested in the rectangular houses, which were built with walls constructed in both pisé and the wattle-and-daub technique (see also *Terzijska-Ignatova*).

Mainland Greece

Recent research at Dikili Tash in Eastern Macedonia indicates that the transition between LN I and LN II around 4800 BC probably happened without a break in this part of the Balkans. The community inhabiting Dikili Tash between 4600/4500 and 4300/4200 BC maintained close communications with the KGK VI cultural complex in eastern Bulgaria. Habitation at Dikili Tash and Sitagroi is now proved to have ended contemporaneously, around the time when the stone walls at Dikili Tash collapsed. After a break of approximately 1000 years, the Early Bronze Age habitation started at around 3200 BC (*Z. Tsirtsoni, P. Darque, H. Koukouli-Chrysanthaki, D. Malamidou and R. Treuil*).

The well-known tell site of Visviki Magoula in Thessaly is re-evaluated by *E. Alram-Stern*. She reinterprets the large megaron and presents the study of the pottery from the Arapi and Dimini phases.

Evidence concerning Neolithic Attica (see also contribution by *Karali et al.*) has increased due to rescue excavations and other research, especially in its eastern regions. Two contributions deal with a recent excavation and re-evaluation of older material. The cave site Oinoe IV at Marathon, still under excavation, was in use from the end of the 6th millennium to the end of the 4th millennium BC. The cave was looted and its stratigraphy

disturbed; still, a large amount of pottery as well as other finds has been recovered that will add much to our knowledge of the Neolithic in central and southern Greece (*A. Mari*).

The Final Neolithic pottery from the site of Kontra Gliata (Kiapha Thiti) in East Attica is the topic of *M. Nazou's* contribution. The material includes "rolled rim" bowls and "cheese pots", as well as coarse ware pottery with plastic decorations and pattern burnishing. Pottery from Thorikos Mine 3 is dated to both the Late Neolithic and Final Neolithic periods. The material represents an assemblage belonging to the Attica-Kephala group.

W. Gauss presents a preliminary report of recent discoveries of late Middle Neolithic and Late Neolithic deposits in the "Solon" area of Aigeira in Achaia, on a terrace just north of the site's acropolis, below a Late Classical/Hellenistic building. The prehistoric layers additionally include a limited number of Chalcolithic and Mycenaean finds. These finds add to our knowledge of prehistory in this part of Greece.

During the last decades, a series of tombs dated to EH I have been uncovered in Western Greece. In 2004, a rich and important cemetery at Kalyvia in Elis was excavated by *J. Rambach*. The Kalyvia cemetery consists of 24 preserved tombs, mainly multiple burials in rock-cut chamber tombs with stomion and dromos. The chamber tombs were placed in two concentric circles, of which the inner contained bodies placed on their backs in an extended position while the bodies in the outer circle are placed in a contracted position. The inner circle is older than the outer one. The first burials in the cemetery can be dated to the Final Neolithic, but it remains in use during the EH I phase. There is also a single tomb belonging to the early EH II period. Pottery is abundant and, surprisingly, ceramics with pattern burnished decoration have been found in secure EH I contexts. Therefore, the Kalyvia cemetery has opened new horizons in the study of the transition between the Final Neolithic and the Early Bronze Age.

Aegean Islands, Crete and Cyprus

New research on the Aegean islands and Crete has opened new insights into the insular Neolithic and the character of maritime communication networks created between communities inhabiting different regions.

Sites dated to the 4th millennium on the Aegean islands are few. One important site from the island of Thasos, the site of Agios Ioannis, was inhabited during the latter part of the millennium (3370–3100 BC), precisely at the transition to the Bronze Age. Obsidian, chalcedony and jasper were imported to the site and a considerable number of loom weights and spindle whorls testify to textile production. Also, the age-profile of sheep remains seems to indicate that these animals were primarily used for wool and milk production, reflecting economic practices with specific characteristics (*S. Papadopoulos, O. Palli, S. Vakirtzi and E. Psathi*).

B. Erdoğan reports on the archaeological record of the site of Uğurlu on the Northeast Aegean island of Imbros/Gökçeada to demonstrate the cultural and chronological affiliations of this site from 5500 to 4300 BC. He points out that Phase III at Uğurlu was a settlement of local character related to the Karanovo III and early Vinča cultures of the Balkans. This phase is particularly noted for its high number of *Spondylus gaederopus* items. The Phase II settlement, on the other hand, ending around 4300 BC, is represented by a smaller settlement with communal buildings showing strong north-western Anatolian elements.

Further south, the site of Strofilas on the island of Andros is another case of a settlement with unique characteristics, including a fortification wall. Founded in the Final Neolithic, it was still inhabited during the earliest phase of the Cycladic Bronze Age (Grotta-Pelos); hence, it was possibly in use during the major part of the 4th millennium BC. Large buildings (one of which is apsidal), up to 200 square meters in size, were situated inside the fortification walls. Large quantities of pottery, stone tools (mainly obsidian), 34 bronze objects, a gold bead, and figurines were

found in the settlement. The amazing rock carvings representing, among other motifs, ships in procession emphasise the importance of maritime trade/interaction networks for the site's inhabitants. Strofilas also helps us to understand the transition between the Neolithic and the Early Bronze Age in the Cyclades (C.A. *Televantou*).

M. Georgiadis presents an account of the Neolithic evidence from the island of Kos based mainly on the results of the Halasarna survey. He also adds another variable to the understanding of the island, namely the gradual development of the settlement pattern in this region from the Middle Neolithic to the Final Neolithic phase. Archaeological evidence shows a slow process of “colonisation” of the landscape by Neolithic people that reached its peak on Kos during the Early Bronze Age.

Crete

The dynamic shift in settlement patterns between the Final Neolithic and the Early Minoan I (3700 to 3000 BC) on Crete discussed by *K. Nowicki* has been mentioned above.

Chronological development and the change in site patterns at Phaistos, framed by a comprehensive survey of changing settlement patterns and cultural structures in the plain of Mesará, is the topic of *S. Todaro*'s contribution. The foundation of Phaistos, the local Phaistos I phase, corresponds to FN II according to the terminology developed at Knossos (similarly: Phaistos II = FN IV, Phaistos III = EB Ia, Phaistos IV = EB Ib). Early Minoan culture and the typical social structure seem to originate in the Phaistos II society. External connections, clearly attested from FN IV (Phaistos II), e.g. the appearance of “cheese pots,” point towards a Dodecanesian/western Anatolian origin of these traits.

The pottery development in Phaistos' Final Neolithic is defined by *S. Di Tonto*. Two clear phases are distinguished. The fact that these phases are observable in stratigraphy means that the pottery of the phases is well defined. The presence of “crusted ware” is

emphasised, which suggests relations with the Attica-Kephala horizon in Mainland Greece and the wider Aegean area (the eastern Aegean islands and western Anatolia).

Surveys on the small island of Gavdos around 40 km from the southern coast of Crete have shown habitation on the island during various prehistoric phases, starting with the Paleolithic and Mesolithic. During the Final Neolithic phase, the island was culturally connected to Crete. Cheese pots were found as in Phaistos II (FN III/IV), flint knappers from Gavdos used a local black flint, obsidian was imported and the pressure blade technique was introduced from Crete (see also *Carter* above). Of great importance was the existence of copper ores probably exploited during FN IV/EB I (*K. Kopaka* and *E. Theou*).

Cyprus

In *E. Peltenburg*'s words: "Cyprus lies *ca.* 450 km east of Rhodes, the SE corner of the circum-Aegean world. Most would agree that, geographically, Cyprus is too distant to belong to that world. And yet, in cultural, historical and demographic terms, the island became closely associated with it in antiquity." By adopting a long-term perspective on developments during the Cypriot Chalcolithic, he presents an overall picture of the socio-economic developments during this period within the specific insular setting.

I. Voskos contributes much to the discussion of socio-cultural change and the emergence of social complexity in prehistoric Cyprus. He accomplishes this by reassessing various sets of socio-economic data, in an attempt to approach cultural change from an internally-driven perspective rather than relying upon external influences as the force of change.

Western Anatolia

During the last few decades, a large number of systematic excavations have been conducted in this area, revealing important new information about the pre-Bronze Age cultural sequences of

west Anatolia. Still, while “Middle Chalcolithic” (5th millennium) is by now relatively well understood, much work remains to be accomplished in relation to aspects of continuity and development of the cultural sequence following this period.

In the proceedings of the conference, many important western Anatolian sites are presented and discussed. One of them is the flat-extended site of Gülpınar (Smintheion; *T. Takaoglu* and *A. Özdemir*) in the south-west corner of the Troad. Well preserved architectural remains (formerly very elusive) and characteristic pottery were found in well-stratified contexts. The Middle Chalcolithic at Gülpınar is represented by two major phases at the site. The earlier phase (Gülpınar II) represents a settlement site exhibiting close affinities with the contemporaneous Balkan cultures. The succeeding phase (Gülpınar III) was mainly Aegean-oriented. Mat-impressed pots, pattern-burnished and white-painted wares, as well as conical rhyta made of marble are the most common features of this late phase.

S. Günel reports on her most recent discoveries at Çine-Tepecik, a significant site located along the land-based route which followed the Meander River Basin between the coast and the West Anatolian hinterland. Her discoveries in Level IV at the site include a rich assemblage of pattern-burnished pottery as well as marble figurines and conical rhyta.

A case study of the finds from Çukuriçi Höyük, located in the territory of the ancient city of Ephesus at the mouth of the Caistrus River, discusses how the region was already a part of a regional and supra-regional communication and exchange system before the beginning of the Early Bronze Age (*B. Horejs* and *C. Schwall*).

The recent finds from Tavabaşı Cave in Lycia enrich our knowledge of the mid-5th millennium BC south-west Anatolian littoral (*T. Korkut*, *G. Işın* and *T. Takaoglu*). This interesting cave site with rock paintings on its walls clearly shows what other kinds of sites besides mound (tell) settlements may be expected from this period in upland locations, far from the coastal zones.

Three papers in this volume focus on major excavations in the İzmir region during the last decade. Ö. Çevik evaluates her archaeological record from the large mound of Ulucak to show what happened following the end of the Neolithic settlement that ended in conflagration around 5700 BC. She highlights the aspects of change observed in material culture that took place between the Late Neolithic Level IV and Chalcolithic Level III at the site.

On the other hand, Z. Derin and T. Caymaz present their very recent finds from the latest stages of the Middle Chalcolithic at Yeşilova near Ulucak. These finds, dating from 4340 and 4230 BC, include “cheese pots,” re-identified as “bread-baking pots” at the site on the basis of experimental studies.

R. Tuncel and V. Şahoğlu provide a vivid picture of new Chalcolithic finds dating from about 4600 to roughly 4200 BC from Liman Tepe. This site is of considerable importance since it provides evidence for both extensive maritime and hinterland contacts as well as early metallurgy during this period.

A.U. Türkcan introduces a perspective from Phrygia, in the West Anatolian hinterland, by focusing on the changing settlement patterns from the Neolithic to the beginning of the Early Bronze Age with special emphasis on the region’s Chalcolithic Porsuk culture. Kanlıtaş stands out as an important site with archaeological evidence for marble bracelet production.

A brief synthesis

The aim of the “Communities in Transition” conference and the current volume was to bring scholars from different regions and with different perspectives together to discuss the socioeconomic aspects of communities that were networked and connected. As we all confront similar questions related to the 5th and 4th millennia BC developments, we foster the exchange of ideas on all aspects of archaeological research, be it in the form of presentation of new data or the re-evaluation of old.

It has long been apparent that, for example, the Aegean islands

cannot be considered independently from the developments happening in the coastal regions on either side of the Aegean Sea, nor can the northern Greek Neolithic be properly understood if considered in isolation from the contemporary developments in the Balkans. Regional schools of thought and different theoretical considerations notwithstanding, information sharing and discussions help us to reconsider and refocus our approaches resulting in a more critical and synthetic interpretation. Even if we are still not close to adopting shared terminologies and chronological systems, it is clear that modern geographical borders must not be barriers to understanding past societies, regional idiosyncrasies aside. This volume is a reflection of this goal, which is seen in the connections among its contributors – both geographical and topical.

Søren Dietz, Fanis Mavridis,
Žarko Tankosić and Turan Takaoğlu

Part I

Introductory and Overarching Studies

Inventing the Final Neolithic

Colin Renfrew

After the radiocarbon revolution

The term “Final Neolithic” as applied to the prehistoric Aegean was a product of the radiocarbon revolution. It was first used, I think, by B. Phelps as he was preparing his doctoral dissertation on the Later Neolithic of South Greece.¹ The need for such a term came with the radiocarbon revolution, and in particular with the tree-ring calibration of radiocarbon (the “second radiocarbon revolution”) which demolished forever the short chronology for the Greek and Balkan Neolithic.² The latter had arisen from the alleged synchronism between Vinča and Early Troy as proposed by M. Vassits and G. Childe, and argued with considerable vigor later by V. Miložić and M. Garašanin. When radiocarbon dates showed that Vinča long preceded Troy, the Neolithic of Greece and the Balkans was seen to extend much earlier than had previously been realised.

The length of the Neolithic sequence in the Balkans was admirably demonstrated by the great site of Karanovo in Bulgaria, excavated by V. Mikov and G. Georgiev ([Fig. 1.1](#)). The great stratigraphic sequence at Karanovo became a kind of template for the Balkans. It revealed with a powerful material reality that the Later Neolithic involved periods of extensive duration, exemplified and materialised in its deep stratigraphy.³

One of the first Neolithic sites in Greece to be dated over its long stratigraphic sequence by a series of radiocarbon determinations of well-stratified samples was Sitagroi in East Macedonia.⁴ From surface indications it was clear before excavation that its sequence contained strata with graphite-painted pottery related to that of the Gumelnitsa culture as seen at Karanovo VI. There were also Early Bronze Age dark-faced wares resembling those of Early Bronze Age Troy. It therefore offered the hope of resolving the problems of stratigraphic equivalence between the Aegean and the Balkans which the first radiocarbon dates had presented.⁵

The deep section at Sitagroi opened in 1968 (Figs 1.2 and 1.3) confirmed for the Aegean what Karanovo had demonstrated for the Balkans: well before the Early Bronze Age of Sitagroi V, with its affinities to Troy I and II and to Karanovo VII and Ezero, there was the long Late Neolithic or Chalcolithic of Sitagroi phase III, corresponding to Karanovo phases V and VI and Gumelnitsa (Figs 1.4–6). Beneath these at Sitagroi was Sitagroi phase I with its dark-faced pottery relating to the Vesselinovo cultures seen at Karanovo III, followed by a stratum (Sitagroi II) with dark-on-light painted wares comparable to those of the Thessalian Middle and Late Neolithic. The pottery of Sitagroi was published in detail in 1986⁶ and the corresponding radiocarbon chronology reviewed in 1971.⁷

Sitagroi phase IV had a dark faced ware with channelled decoration, related to the Baden culture, and phases Va and Vb related to the Trojan Early Bronze Age. Phase Va was that of the “Burnt House” at Sitagroi, and phase Vb had thickened rolled-rim bowls (Fig. 1.7) and one-handled cups (Fig. 1.8) related to those of Troy. The broad validity of the synchronisms seen at Sitagroi has since been demonstrated with greater precision by the abundant series of radiocarbon determinations from the excavations at the important site of Dikili-Tash,⁸ which is also located in the plain of Drama.

It was therefore possible in 1972 to suggest a culture sequence for the Later Neolithic of the Aegean⁹ where there was plenty of room on a calibrated radiocarbon chronology in the period after what had been termed the Late Neolithic or Chalcolithic or “Aeneolithic” (now occupying the 5th millennium BC in calendar years) for the newly invented “Final Neolithic,” placed from around 4100 BC to around 3200 BC (Fig. 1.9).



Figure 1.1. The stratigraphic section at Karanovo, photographed by the author in 1962.

A “missing millennium?”

When such a table was systematically set out, there was, in 1972, not much archaeological material available in some areas of the Aegean to place in the open spaces in the “chest of drawers” diagram which was thereby produced. There certainly appeared to be some gaps. The absence of any Neolithic at all on the Cycladic islands had already been rectified by the excavation of Saliagos near Antiparos.¹⁰ The Middle Neolithic Saliagos culture would soon be further and richly documented by the excavations at Ftelia on Mykonos¹¹ and later by the work of F. Mavridis in the Cave of Antiparos.¹² But the lacunae in the table led some scholars to speak of a gap, or even of a “missing millennium.”

Some sceptics even suggested that these lacunae might be an artefact of the radiocarbon dating and calibration process itself. For it is indeed the case that there are “kinks” in the radiocarbon calibration curve¹³ which may lead to some bunching. If successive samples, each separated by one century in calendar years, were subjected to radiocarbon dating, there would indeed be some bunching arising from the “kinks” (*i.e.* variations in slope) in the calibration curve. But similar problems have been examined in other areas, for instance in Neolithic Orkney.¹⁴ There similar effects can be observed,¹⁵ although not at precisely the time under discussion here in the Aegean, and not over as many centuries. So, although the effects of varying cosmic radiation on the atmospheric reservoir of radiocarbon should not be overlooked, they do not adequately explain the archaeological phenomenon before us.

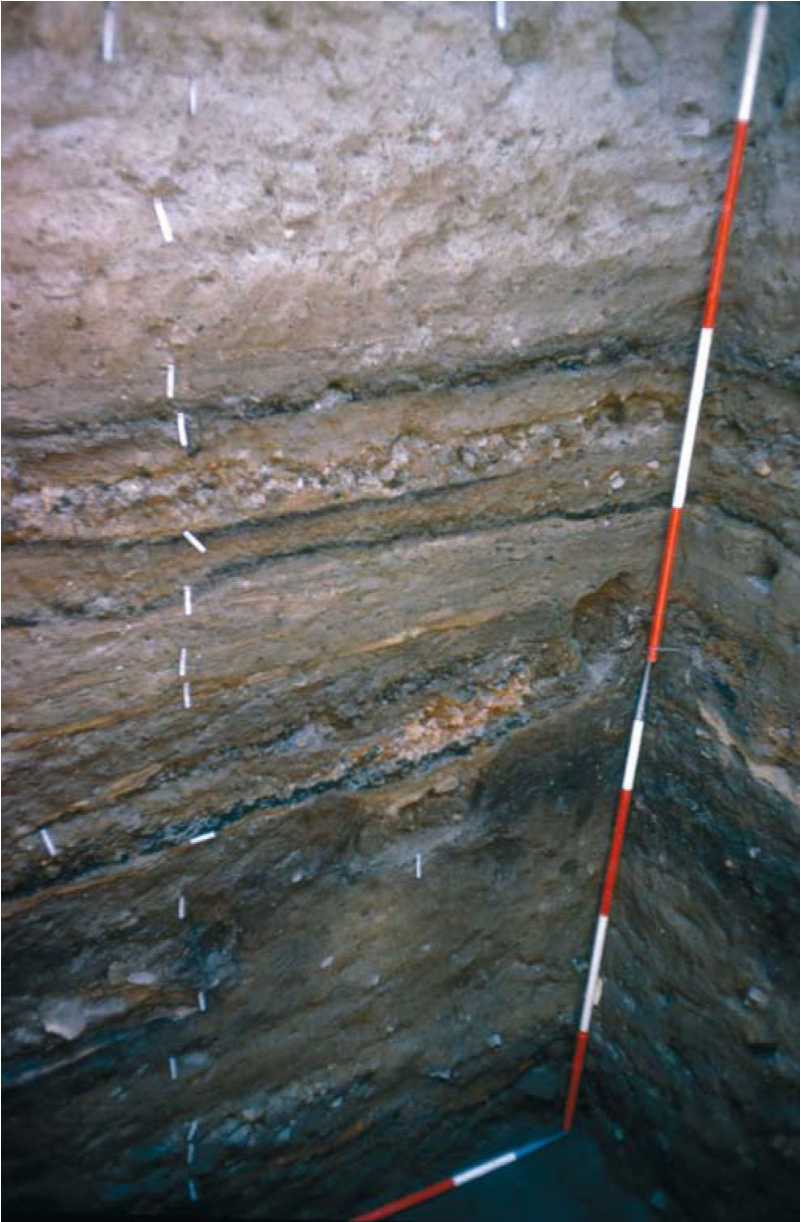


Figure 1.2. The deep sounding of Trench ZA at Sitagroi in 1968 (scale in 50 cm units).

Local variations and interaction

In reality the supposed effects of the phenomenon of “absence” look very different as one moves from region to region in the Aegean. In the Cyclades, the discovery of the Saliagos and Kephala cultures in the 1960s had already established the reality of the Neolithic occupation of the islands. The discovery of Strofilas on Andros now transforms the picture,¹⁶ with its striking fortifications, which are clearly much older than those of Troy. The occurrence of the ring idol motif¹⁷ suggests a link dating back to the Balkan Chalcolithic and the Middle Neolithic of Thessaly. The pressure flaked obsidian arrowheads, characteristic of the Saliagos culture, support this chronological link. At the later end of the chronological scale there are ceramic affinities with the incised jars with vertical lugs of the Grotta-Pelos culture¹⁸ which suggest that the occupancy of Strofilas might last until the onset of the Cycladic Early Bronze Age.

Figure 1.3. Stratigraphic section of Trench ZA at Sitagroi.

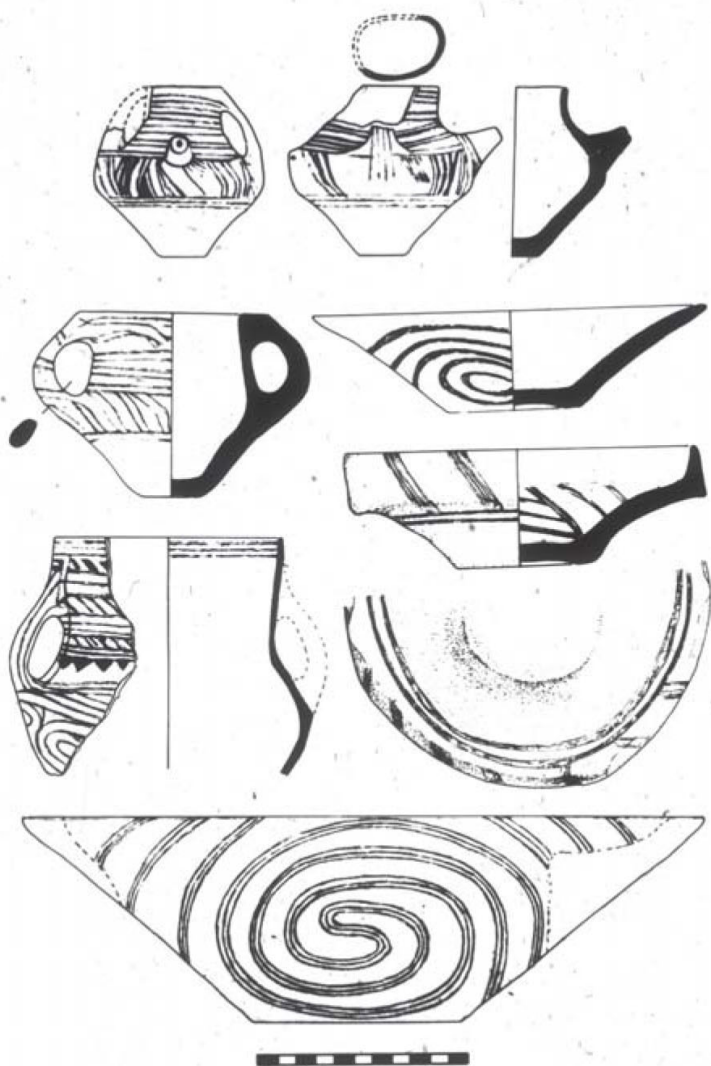


Figure 1.4. Graphite-painted pottery from Phase III at Sitagroi.



Figure 1.5. Graphite-painted pottery from Phase III at Sitagroi



Figure 1.6. Black-on-red pottery from Phase III at Sitagroi.



Figure 1.7. Tubular lug handles from bowls of Phase Vb at Sitagroi.



Figure 1.8. One-handed cups from Phase Vb at Sitagroi.

Excavations in the Cave of Zas, Naxos,¹⁹ and more recently in the Cave of Antiparos²⁰ could likewise be interpreted in terms of continuity. But occupation in these cave sites must always have been of an intermittent character, and alternative scenarios

involving changing or successive populations can readily be formulated and can scarcely be refuted on the evidence the caves provide.

Radio-carbon date (5568 half-life) B.C.	PERIOD	AEGEAN REGIONS					Approx date in calendar years. B.C.
		MACEDONIA	THESSALY	SOUTH GREECE	CYCLADES	CRETE	
	EARLY BRONZE AGE	Sitagroi V _a					Emborio IV Troy I
c.2500		IV	E. Thess. I	Eutresis Culture	Grotta-Pelos culture	E.M.I.	V Kum Tepe Poliochni Blue
	FINAL NEOLITHIC	IV III	Rachmani	Eutresis Gp. I - II Attic - Kephala culture		"Sub-neolithic" Phaistos Knossos I	VI Poliochni Black Kum Tepe Beşikatepe
c.3300		III	Larissa		?	II	VII
	LATE NEOLITHIC	II	Dhimini	Matt-painted pottery		III	VIII
c.4000		I			Saliagos Saliagos	IV	IX
	MIDDLE NEOLITHIC	Early Servia	Sesklo	Neolithic Urfirnis		V VI VII	X Aghio Gala
c.5000		Nea Nikomedeia		Early neolithic patterned ware		VIII	
	EARLY NEOLITHIC		Proto-Sesklo	Rainbow ware		IX X	
c.6000	"MESOLITHIC"		Voivo	Franchthi	—	—	? c.6300

Figure 1.9. Culture sequence and absolute chronology for the Final Neolithic as reviewed in 1972 (after Renfrew 1972, 76).

In the East Aegean, the culture sequence at Emporio on Chios already gave suggestions of continuity from the Earlier Neolithic of Ayio Gala to the Early Bronze Age,²¹ although the re-examination of the sequence²² has to be taken into account. This remains one of the few sites in the Aegean for which a case for unbroken continuity over the 5th and 4th millennia BC could be made. The picture has been radically modified in recent years by the excavations at Liman Tepe and Bakla Tepe. It remains to be seen whether their inception and development can be viewed largely in Aegean terms, as the evidence of Strofilas might permit, or whether they should be judged in terms of development on the fringes of the "Ubaid world" of the Near East as indicated by Hauptman²³ and as Şahoğlu has suggested.²⁴

Another site where continuity has been suggested is Knossos on Crete, although we should remember that it was here that the dictum of S. Weinberg “contiguity does not prove continuity” was first applied. The contrasting approaches to the Final Neolithic offered by Tomkins²⁵ and by Nowicki²⁶ currently leave this question unresolved. Most of the place sites of Early Minoan Crete, including Phaistos could be classed among the “enduring town sites” discussed below, being generally new foundations. Only Knossos made the clear transition from tell settlement mound (type c below) to proto-urban centre at or just before the beginning of the Early Minoan period.

The extent of interaction among the regions of the Aegean during the Late Neolithic period is only now becoming clearer, although much of it is anticipated by the obsidian trade from an early date.²⁷ It is documented and illustrated by the evidence for the marble workshop at Kulaksizlar in Western Turkey,²⁸ with the appearance of closely related forms, although apparently not direct imports, both at the cemetery of Kephala in Kea and in the Varna cemetery.



Figure 1.10. Metallurgical ceramics from Phase III at Sitagroi.



Figure 1.11. Gold bead from Phase III at Sitagroi (diam. 4 mm) – one of the oldest stratified finds of goldwork from prehistoric Greece.

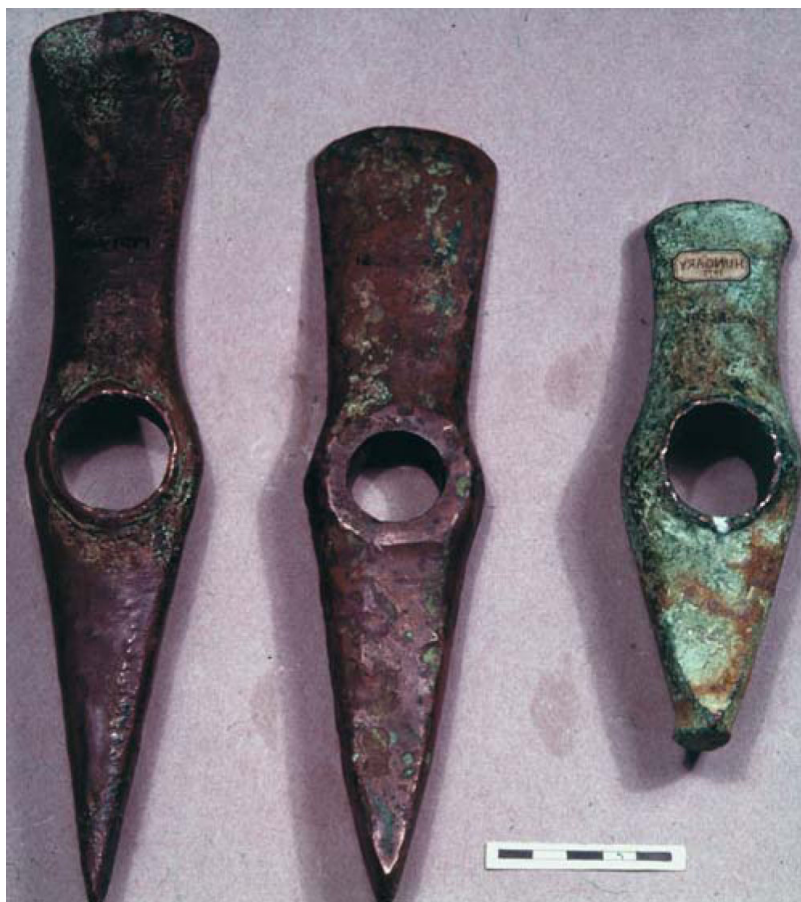


Figure 1.12. Copper axe-adzes of the Balkan Copper age (Serbia and Hungary) in the Ashmolean Museum, Oxford.

Key themes

Metallurgy

The very slow development of metallurgy in the Aegean is notable. Already in Sitagroi phases II and III, we have copper beads, melting in crucibles (Fig. 1.10), and casting of copper from around 4800 BC in calendar years.²⁹ The earliest securely dated occurrence of gold in the Aegean (as far as I am aware) is the small gold bead from Sitagroi III (Fig. 1.11), dated around 4400 BC.³⁰ Indeed the modest, and largely decorative, finds of metal

from Aegean sites at this time contrast with the clear evidence for smelting and casting of copper tools seen at several sites in the Vinča culture of Serbia (Fig. 1.12), including Belovode³¹ and Pločnik.³² The copper and gold metallurgy of the Late Neolithic of the Balkans is exemplified by the cemetery at Varna in Bulgaria (Figs 1.14–15), dating from around 4500 BC.³³ These developments laid the foundations for the interactions and the trade in metals that later characterised the Aegean in the 3rd millennium BC. The important role of Attica for the further development of metallurgy at the inception of the Early Bronze Age is now becoming clear.³⁴

Climatic effects

An important theme touched upon in the Symposium is the effect of regional climatic change. With the pollen cores available in some areas, for instance in the Tenagi Filippon, there may be the hope of documenting climatic change from reliable data. This may well hold the promise of illuminating the factors which underlay the decline in the productive regimes which supported the great tell settlements of Thessaly, Macedonia and the Balkans in the Early and Middle Neolithic periods. It is a circular argument to infer climatic change from the occupancy or abandonment of settlements.





Figure 1.13. Ivan Ivanov (left), the excavator of the Varna cemetery, and the author at Varna, c. 1977.

Demographic processes

Warmly to be welcomed in this Symposium is the willingness to think of population increase or population decrease in terms of demographic processes, rather than in terms of invasionary episodes. Major population displacements are not, of course, to be excluded. But discontinuity in a stratigraphic sequence should certainly not be taken, in the absence of other evidence, as indicating such an episode. For few formation processes can in themselves be continuous: if they were, the prodigious settlement depths seen at exceptional tell sites such as Karanovo would be ubiquitous. They are not.

When more sophisticated micromorphological techniques are applied to the stratigraphic successions on some of the long sequences in the Aegean region it may be possible to say more about single specific events in geomorphological terms. But it will never be easy to relate these to the life experiences of individuals, or even of specific human populations.



Figure 1.14. The gravegoods from Grave 4 at Varna (photo by C. Renfrew).

Population numbers often vary in a cyclical manner without

immigration or emigration. The point has recently been made for Neolithic Europe by S. Shennan³⁵ and for Neolithic Greece by C. Perlès³⁶ in her paper “Tempi of change.”³⁷

Tell formation and deep stratigraphy in the Neolithic of the Balkans

A different perspective on all these alleged gaps may perhaps be developed by thinking more specifically on the processes of tell formation. For the tell (an Arabic term) which has its equivalent in the Iranian tepe, the Bulgarian moghila, the Thessalian magoula and the Macedonian tumba, is the product of a specific conjuncture of cultural processes and environmental conditions.³⁸

In general, in the Aegean as also in the Near East, there are three main categories or classes of context where deep and often seemingly unbroken stratigraphic successions can be found, with depths to be measured in meters or even tens of meters:



Figure 1.15. The gravegoods from Grave 4 at Varna (detail) (photo by C. Renfrew).

(a) caves;

- (b) enduring town sites, where the building materials often include imported stone;
- (c) settlement mounds situated upon alluvial plains where buildings involve *tauf* or *pisé*.

(a) Cave sites figure prominently in the “Communities in Transition” conference. But this is not because they are a feature exclusively of the Late or Final Neolithic periods. On the contrary they often have Early Neolithic strata, and have also offered some of the best evidence we have for the Upper Palaeolithic and Mesolithic periods, for instance the Franchthi Cave in the Argolid. They figure prominently in our Symposium because the following two categories (b) and (c) do not figure prominently in the Final Neolithic period in the Aegean.

(b) The category of “enduring town site” is clearly heavily dependent upon the notion of “town.” Yet without attempting too rigorous a definition, it is clear that in the Aegean there was a phase, starting around 3400 to 3200 BC, during which sites, sometimes fortified, developed and continued to be occupied often with little interruption for many centuries or millennia after their foundation. The best-known example would be Troy, whose origin is now set around 2900 BC.³⁹ The settlement at Bakla Tepe⁴⁰ was apparently first fortified earlier than this, as was Liman Tepe. In the Cyclades, Phylakopi on Melos and Ayia Eirini on Kea both began late in the 4th millennium BC, and although they were not fortified until later, they were occupied for long periods, as indeed was Akrotiri on Thera.

These became deeply stratified sites, occupied over long periods. In this respect, they differ from Strofilas on Andros, one of the earliest fortified sites in the Aegean, which did not develop a deep stratigraphy such as is under discussion here. Palamari on Skyros is another fortified site which did not develop a deep and long-enduring stratigraphy. And Skarkos on Ios, one of the best-preserved sites of the Cycladic Early Bronze Age, with buildings well preserved in deep levels, is effectively a single period site of

the Early Bronze II period, and so does not fall into the category under discussion.

The inception of the small “proto-urban” community⁴¹ or town does indeed seem in the Aegean to be a feature of the beginning of the Early Bronze Age, which one might recognise in some areas as early as 3400 BC. It is a maritime phenomenon, perhaps to be associated with the developing trade in metals and metal goods. The obsidian trade obviously goes back much earlier, and the Cycladic longships are now first documented at Strofilas in contexts which probably pre-date *ca.* 3400 BC and the inception of the Early Bronze I phase in the Aegean or the Late Chalcolithic in West Anatolia. So maritime trade long pre-dated these early maritime “proto-urban” sites in the Aegean. Yet they do represent a new development, perhaps associated with the expansion of a maritime metal trade, on a scale perhaps far exceeding the very early metal trade of the Late and Final Neolithic which in this early phase seems not to have been primarily maritime.

(c) The settlement mounds (tells) are of a very different character in material and in location. Few lie on the coast. They are found most abundantly on the alluvial plains of Thessaly, East Macedonia, Bulgaria, Romania and beyond. They represent a mode of construction where the building material is clay, usually supported on a timber frame with wattle (as at Nea Nikomedeia), although just a few mounds in the Aegean and the Balkans are made of mud brick, usually unbaked. Such mud brick construction, with little or no timber, is more common in Central Anatolia, for instance at Çatalhöyük, and at many Near Eastern sites. In the Earlier Neolithic period these mounds do not often incorporate much stone, and fortifications of stone are then unusual. Thus, they differ both in location and in building material from the deeply stratified enduring town sites discussed above.

It is these settlement mounds which are such a special feature of the Thessalian, Macedonian and Balkan Early and Middle

Neolithic, and which decline notably in the Late Neolithic and Final Neolithic periods. These tell mounds are a special regional adaptation in North Greece and the Balkans to the prevailing climatic and ecological conditions. They are less common in South Greece, and they are not found in the Cycladic islands.⁴² In Crete the Early Neolithic tell at Knossos could certainly be included within this category. There, in the Early Minoan period, it is however transformed into an “enduring town site” of category b, with the introduction of much building material of stone, which was little used previously. The Neolithic tell at Knossos seems to be the only major settlement mound of this class reported from Crete, where the other deeply stratified sites are either caves (type a) or proto-urban communities (type b).

The perception of a “gap” or “missing millennium” over the time span *ca.* 4500 to 3500 BC may thus be seen as an illusion. It arises from the decline in the Aegean of one settlement type, the tell or *magoula*, which flourished in the Early and Middle Neolithic periods of Thessaly and Macedonia, to be replaced by a very different phenomenon, the proto-urban coastal centre in the centuries before 3000 BC as the metal trade developed.

In the Balkans, the Neolithic tells were often re-occupied in the Early Bronze Age. But the economy by then may have had a different character, which seems to have produced less thick depositional remains, and hence less deeply stratified levels in the Bronze Age than in the preceding Neolithic periods.

So although it was indeed necessary to invent the Final Neolithic when the second radiocarbon revolution began to clarify the nature of the 4th millennium BC in the prehistoric Aegean, it should not be necessary to introduce claims of an exceptional kind to explain its historical trajectory. Settlement sites are usually only sporadically occupied in the prehistoric Aegean (as elsewhere), and *a fortiori* only sporadically documented. One partial exception to this rule is the rich and deep tell mounds of the Early and Middle Neolithic of Thessaly, Macedonia and the Balkans which

flourished particularly in the 6th and 5th millennium BC and which were in decline in some areas by the inception the Final Neolithic phase. Another exception is offered by the ensuing proto-urban sites of the Aegean coast which grew up towards the end of the 4th millennium BC, towards the end of the Final Neolithic period. Neither process gives grounds for the invention of a “missing millennium” in the intervening time span, the Final Neolithic period itself.

Notes

- 1 Phelps 1975; Phelps 2004.
- 2 Renfrew 1973a.
- 3 Georgiev 1961.
- 4 Renfrew 1969; Renfrew 1970.
- 5 Mellaart 1960; Neustupný 1969.
- 6 Renfrew *et al.* (eds) 1986.
- 7 Renfrew 1971.
- 8 Darcque *et al.* this volume.
- 9 Renfrew 1972, 76, tab. 13.VI.
- 10 Evans and Renfrew 1968.
- 11 Sampson (ed.) 2002; Sampson 2008c.
- 12 Mavridis 2010.
- 13 Clark and Renfrew 1974; Suess 1967.
- 14 North Scotland, Ashmore 2000.
- 15 Renfrew 2000.
- 16 Televantou 2006a, Televantou 2006b, Televantou 2008.
- 17 Televantou 2008, figs 6.10, 6.20.
- 18 Televantou 2008, Fig. 6.15.
- 19 Zachos 1999.
- 20 Mavridis 2010.
- 21 Hood 1981/1982; Renfrew 1972, 73 [Fig. 5.2](#).
- 22 Lambrechts 2013.
- 23 Hauptmann 2013.
- 24 Şahoğlu 2005.
- 25 Tomkins 2013.
- 26 Nowicki this volume.
- 27 Renfrew *et al.* 1966.

- 28 Takaoğlu 2002; Takaoğlu 2005; Takaoğlu and Bamyacı this volume.
- 29 Renfrew and Slater 2003, 312.
- 30 Renfrew and Slater 2003, 319.
- 31 Radivojević 2013.
- 32 Kuzmanović-Cvetković 2013.
- 33 Higham *et al.* 2007; Renfrew 1978.
- 34 Nazou this volume.
- 35 Shennan 2013.
- 36 Perlès 2013.
- 37 See also Perlès this volume.
- 38 Davidson 1986.
- 39 Weninger 1995.
- 40 Tuncel and Şahoğlu this volume.
- 41 Renfrew 1972, 236–44.
- 42 Mavridis this volume.

Transformation and changes at the end of the Neolithic

Kostas Kotsakis

Introduction: The collapse of the Final Neolithic

For someone more closely examining the 5th millennium Neolithic in Greece, the striking gap in evidence towards the end of the millennium poses a difficult question. By the close of the 5th millennium in Thessaly alone, hundreds of tells had already been abandoned. The same had happened further north in Macedonia and in other regions of the Greek peninsula. Why did scores of sites supporting thriving populations since the 7th millennium cease to exist? What happened to all these peoples and cultures that had lived for almost three thousand years in organised villages and hamlets, and had built dense, active and extended networks? With the exception of the beginning of the Neolithic, when the shift to the new way of life was completed within a couple of centuries, the speed of this phenomenon remains unique in the Neolithic. Judging from its uniform spread all over mainland Greece and the islands, it was also of a major scale.

Looking at the broader picture of the Balkans and beyond, in the region called “Old Europe” by M. Gimbutas, the picture is equally dramatic. The thriving societies there disappear at around the same period of time. Carbon 14 dates of the 4th millennium

are very rare and cluster either at its beginning or at its end, when the Bronze Age cultures were already established. The spectacular Neolithic of the region ended in silence, and social memory and practices vanished: the new communities have forgotten technologies and material culture, shifted resources, particularly copper ores, abandoned established genealogies together with the imposing mega-settlements, disposed of burial practices that exhibited strong status positions and wealth, and closed down extensive networks previously reaching as far as the Aegean and the Adriatic. For specialists focusing on that region, the change has been described as “a catastrophe of colossal scope.”¹ In Greece, although the 5th millennium Late Neolithic (LN) culture was far more modestly articulated in comparison, the abandonment of old settlements probably signifies a breakdown of the established pattern and a resulting considerable depopulation. The scant archaeological evidence is still too patchy to give a precise estimate, but the collapse of “Old Europe” probably happened too close to Greece to leave it unaffected. Still, at least in some regions, there is a possibility that 4th millennium horizons, overlying those of the 5th, remain archaeologically unrecognised, exhibiting features that research has not yet clearly defined. In the region of Greek Macedonia, material culture of the late 5th–early 4th millennium seems different and discontinuous when compared to that of the very characteristic Bronze Age, but it is not easily distinguishable from a dilapidated version of the Late Neolithic. Paliambela Kolindrou, for example, preserves Final Neolithic deposits only in a few pits. A distinct stratigraphic horizon with well-defined deposits was either absent or has been eroded away, being the exposed uppermost part of the stratigraphy.² In such cases, the whole phase could easily be overlooked, while by contrast, the stratigraphic gaps in the excavated tell sites of the region (e.g. Mandalo, Servia, Sitagroi, Dikili Tash) are unmistakable and well-dated.³ The present state of evidence unavoidably weighs the scale heavily towards an

impression of change in settlement pattern and depopulation; the possibility, however, that this impression is the combined result of poor archaeological visibility and lack of focused research cannot yet be excluded. While it is true that we have very few 4th millennium ¹⁴C dates so far,⁴ we cannot be confident that the stratigraphic gaps identified in the relatively small excavated areas accurately represent the sequence of the whole site. The example of Paliambela Kolindrou shows that this sequence can be complex and variable.

The issue, therefore, is far from resolved, and the reluctance to argue from archaeological gaps is fully justified. For many archaeologists, whether the change was fast and cataclysmic or slow and gradual, such a seemingly widespread disruption calls for an explanation of equal measure, significance and complexity. Large-scale climatic changes, a sudden rise in sea level drowning Old Europe and, above all, the time-honoured theory of migration of peoples from the Pontic-Caspian steppes have all been suggested as likely causes.⁵ In the case of Greece, J. Coleman has put forth the hypothesis that migrants with ties to “steppe-cultures” penetrated the southern tip of the Balkan Peninsula from the early 4th millennium BC and introduced the Indo-European dialects.⁶ As is often the case, comprehensive propositions of this type suffer more or less from the same basic limitation: the lack, or even impossibility, of compelling factual evidence.

The purpose of this critique, however, is not to discuss the migration arguments and the archaeological evidence on which they rest, despite the influence that such arguments continue to exert on archaeological narratives. Up to now, it is true that they rely on isolated cases and objects, and although they may well find better evidence in the future, they will still remain arguments trying to translate similarities in material culture into encultured peoples. This is an association that does not appear as theoretically secure anymore as when culture history ruled unchallenged. At any rate, immigrants may indeed be present, at

least to some extent, but whether this presence caused the transformation we are discussing is a totally different matter; if it did not, we are still left with one major thing to explain.

An alternative view: The plasticity of society

Explanations put forward for large-scale phenomena of cultural transformation often acquire the form of an overarching, rational and structured entity of a higher order, above the chaotic materiality of the world. This is to a large extent a response to a venerable anthropological tradition,⁷ in which culture itself is conceived as a transcendent totality, as a real thing with its own rational principles of causality, with no place for individual agency. As a result of the foundational concept of culture, causes of its transformation are construed as equally powerful and overarching entities, e.g. climatic change or environmental crisis, similarly unaffected by individual agency, capable of transmuting culture as a whole as well as in its subordinate instances. One of the major criticisms levelled against the foundational view of culture, even from the time it was introduced, was its lack of understanding of the infinite complexities and multiplicities involved in the cultural phenomenon.⁸ Interestingly, these early criticisms are consonant with the contemporary theoretical discussion which also raises points of complexity and agency.

C. Malabou's recent concept of *plasticity*, based on her reading of Hegelian dialectics, offers an interestingly different framework for understanding the transformations or metamorphoses of culture, which does not require foundational concepts and therefore overarching transformative models. If I read Malabou's insight correctly, transformation does not need to correspond to an overarching force, sometimes it happens "for no reason at all".⁹ To use her words, "we live in a closed organizational structure, and the main closed structure is society, but at the same time this structure is plastic. Inside it, we have all kinds of possibilities to escape from the rigidity of the structure."¹⁰ The plasticity of social

structure is a potentially useful idea: it introduces the possibility of change not as a result of a modification of an external totality affecting the cultural system, but also in variable ways from the inside of the social structure as a result of simple things related to individual agency. If this concept has any value, the explanations of transformations proposed by different researchers are still possible, provided, of course, they are sufficiently grounded on factual evidence. But it means also that social structure is re-established not only as a factor for shaping the short term, but also for invoking changes in the long term. We will now turn our attention to this. Again, in keeping with the argument presented here, we will focus on the small scale, on the daily activities that create the being-in-the-world of the Neolithic people and of the objects they use.

Early settlements of the 7th and 6th millennium BC in Greece were small clusters of houses of various forms and sizes, rarely housing a population of more than a few dozen overall. The sites were as a rule long-lived, and according to the relevant bioarchaeological evidence, occupied year-round, mainly depending on grain crops for subsistence and less on meat and dairy.¹¹ One distinctive characteristic of these Neolithic villages is the heavy investment in village solidarity as reflected in the digging of massive enclosure ditches and the building of retaining walls to support the edges of tells, as for example at Sesklo.¹² Burial practices, such as burying the dead in the enclosure ditches or dispersing bone inside the settlement additionally emphasise collective solidarity.¹³ In many cases, like at Paliambela Kolindrou, the collective works encircle the typical rectangular houses, similar in type to the house-models of the same period, and the typical tell pattern is consolidated in which houses are rebuilt on the same spot, forming lineages and competing for domestic ancestries and power.¹⁴ On the small, daily scale, the appearance of cooking-pots and cooking facilities and relevant domestic equipment inside the house indicates that by the 6th

millennium the domestic unit was probably consuming food at the household level and had developed intensive and persistent domestic functions clearly recognised archaeologically.¹⁵ Storage vessels in the houses become larger and more frequent from the Middle to the Late Neolithic.¹⁶ There is, therefore, a growing trend of autonomy and independence of the domestic unit, stated both metaphorically within the Neolithic village and practically with the presence of the house, although this independence was not definitely decided, as it would have been if real ancestors were brought into the domestic domain, *i.e.* buried inside the house. Throughout the Neolithic, this long-term tension between collective solidarity and domestic autonomy, running against each other and oscillating in varying degrees between the ideological imaginary and practical materiality, was the central motivation of social reality.¹⁷ Potentially, this tension could have become a conflict.

It is interesting to note, however, that despite their heavy ideological load, houses very rarely explicitly state their claim to individual independence. Contrary to houses in central Anatolia, for example, there are no traces of high visibility symbolic expression, such as sculptures, wall paintings *etc.*, directly connected to the house.¹⁸ The relative uniformity of houses in the 6th millennium Neolithic village indicates no apparent will to manipulate the conceptual universe of the community. Households and domestic units obviously still need mutual solidarity, as an isolated household is rarely viable without support. On the other hand, their rise broadly coincides with the proliferation of elaborately painted pottery, related to the display and serving of food, and very fine monochrome ware, probably related to consuming food on special occasions. In contrast to the fixed equipment inside the house, the movable character of these objects and their decoration imply their display also on the outside. Again, material culture and social events simultaneously highlight both collective and domestic solidarity.

These are the signs of a deep-seated tension. Very often the open manifestation of a dangerous conflict within the social fabric is suppressed through ideology, in this case by the ideology of sharing in the open. On the other hand, the signs of an increasing independence of the domestic unit become gradually clearer, though in no way unambiguous, as we move towards the Later Neolithic at the end of the 6th and the 5th millennium BC. Houses become more elaborate, like the megara at Sesklo and Dimini, having separate rooms and cooking facilities. In Makriyalos the initial settlement of pit dwellings is replaced around the middle of the 5th millennium by a megaron.¹⁹ Access to these houses becomes more graded, sometimes enclosed within perimeter walls, as at Dimini, Sesklo, Mandra in Thessaly, Paliambela Kolindrou and at the later Palioskala in Thessaly.²⁰ The inner enclosed space in a house is more appropriate for invited private hospitality, while bucrania adorning house facades at LN Promachon in northern Greece²¹ have been interpreted as commemorating commensal events, presumably to uninvited outsiders or to people not related to the immediate social context of the hosts.²² Specialised evidence on LN diet based on isotopic analysis of human skeletons in Makriyalos²³ and chemical analysis of organic residues in cooking pots at Paliambela Kolindrou, Stavroupolis Thessalonikis and Makriyalos indicate some form of dietary inequality building up between individuals.²⁴ The well-known spectacular commensal event in a big pit right in the middle of the LN extended settlement of Makriyalos is a good example of these processes: although a public open event, it is subtly subverting its main message by allowing a net of fine expressions of individuality. While cooking pots and serving pots are brought to the public space of mass consumption from traceable households, they are extremely standardised both in size, technology and appearance. The pots thus underline the communal aspect of cooking, sharing and offering food. On the other hand, the hundreds of cups used during the event for individual food

consumption, smashed or thrown into the pit afterwards, exhibit an endless variety of forms, fabrics, colours and shapes of handles, often zoomorphic, emphasising the symbolic significance of shared and consumed meat for establishing solidarity. The individuality of the cups thus underlines the individuality of their owners, participants in this collective commensality. Cooking and sharing in Makriyalos is still communal, access to consumption is individual. The message sent by the event revolves around the traditional collective solidarity, challenged, however, by an emergent domestic individuality.²⁵

The gap in the archaeological record following the end of the 5th millennium BC does not allow us to fully trace the trajectory of this trend. Moving once more beyond Greece to the north, the evidence from the Varna cemetery shows that individual elites were established and ideologically imposed by at least the mid-5th millennium BC, although, as it has been observed, “the ethos of inequality did not extend to the home”.²⁶ Houses remained fairly ordinary and similar. The Hamangia settlement of Durankulak exhibits large stone houses, associated, according to relevant research, with elites. Some of these houses were two storied, with equipment for daily activities, metallurgical production and ritual or symbolic acts. Houses of the Cucuteni Tripolye or Tripillian culture indicate a strong combination of ritual with household activities, underlined by the elaborate vessels for the presentation of food. The megasites east of the Carpathians, measuring many hundreds of hectares, still exhibit no distinct expression of inequality among the thousands of houses comprising each of these megasettlements. The ideological expression of the destabilisation of collective solidarity was not easily allowed.²⁷

In any case, the huge region and the multiplicity of cultural forms and contexts found north of Greece make this exercise very selective. Most of the arguments put forth here concerning the shifting balance between collective and domestic solidarity are based on a very detailed in depth examination and synthesis of

different categories of archaeological material produced by recent, intensively excavated and studied sites in Greece, integrated with very powerful innovative analytical techniques.²⁸ The material representing this period is, in this sense, uneven, and conclusions drawn for the north cannot, at the moment, find an easy comparison with the rest of Greece. However, some evidence that the tension between collective solidarity and the domestic group was still active throughout the 4th millennium exists. It may be no accident that the complete House D found at Mikrothives, Thessaly, one of the rare finds dated around the middle of the 4th millennium BC, had three successive rooms.²⁹ The view to the rooms from the entrance of the house was blocked by walls, making them suitable for private hospitality. Both guest-rooms at the back of the house have unique and elaborate hearths with unusual plastic decoration. They might be related to a special food preparation routine that would certainly enhance the hospitality experience. Inside the house, pits with cattle bones are testimony of hospitality events having taken place there. The famous “Bratislava cups,” a shape with very few examples found so far only in sites of northern Greece,³⁰ vessels for offering and consuming food were obviously part of this sophisticated hospitality offered to the guests of the household. As M. Helms has observed, objects coming from, or somehow connected to, faraway places acted as tangible symbols of personal connection with powers from beyond the familiar world.³¹ The household owning these exotic items had a special power over strange places, even beings, and therefore had an extraordinary significance among the rest.

The Bratislava cups and the Mikrothives site, though very clear, are not the only pieces of evidence that point to an increase in the importance of domestic hospitality over time. Throughout the LN, tableware exhibits changes related to more sophisticated practices of food consumption. Drinking sets appear now for the first time, with more shapes for transporting and serving liquids.

Large vessels with handles appear also during this period, in contrast to those of the relatively uniform MN and especially of the EN. Specialised vessels, such as tall fruit stands, scoops and spit supports also appear.³² The complexity of the ceramic repertoire indicates that commensality was taking place in variable contexts and not only in communal public events. Hospitality inside the house, where the sophistication of tableware and of preparation and serving rituals acquired arguably a special meaning, was thus underlining the power of the household within the community.³³

Conclusions: A social perspective

The argument put forward here in relation to the archaeologically obscure period which is the theme of this conference, is that events during the later 5th and the 4th millennia BC were connected to a breakdown of traditional community social structure as a result of an increasing independence of the domestic unit. This may have created a marked imbalance, which eventually eroded the collective solidarity that socially and economically sustained the original Neolithic groups. It is not the only known example in which a social tension of this scale led to the disintegration and collapse of a community and the rearrangement of the population and of individual daily lives. This was a tension that gradually and slowly affected lives on the small, everyday scale, which in turn affected networks and alliances, and not necessarily a big, overarching and sudden catastrophe. We have to account for the *plasticity* of social structures, as suggested by C. Malabou, which can change “sometimes with no reason at all” – or better yet, for no *immediate* reason. This was a change that was slowly building for at least 2000 years before its results became visible; no sudden, exclusive or all-encompassing explanation would be suitable. This was a change that did not follow a particular teleology, and was open to a multitude of outcomes. As such, it was in no way incompatible with other

larger or smaller phenomena, such as universal climatic variation, localised or extensive environmental crises, migration waves or widespread instability in the Balkan Peninsula, though not entirely contained by them. No matter the resilience of any social structure, it is principally in coping with the conditions faced in everyday life that success or failure is measured and eventually decided.

Equally, examining the course taken after the collapse and into the Bronze Age, one cannot help observing that it followed different trajectories: life was re-established on abandoned tells, or in new short-lived small settlements, or around impressive corridor houses as those in southern Greece. On some of the tell settlements of Thessaly and Macedonia larger houses appear, but no central building like the ones in the south. Some of the Bronze Age communities in the north like Mandalo or Archondiko placed strong emphasis on the autonomy of the individual house and the domestic group, but never was this emphasis consolidated in the form of a central building.³⁴ It seems that the communities of the north chose to re-establish some form of traditional collective life, while in the south, they followed the new road all the way. Why this was so is not easy to tell, and I fear that perhaps I have already stretched the argument too far. But it may have something to do with the persistence of communality, a tradition founded on the effectiveness of village solidarity in coping with the challenges of daily life. Is it a coincidence that urban centres up in the same region appeared so late in antiquity? Whatever the case, and on a more general level, the crucial conclusion is that archaeology needs to understand more deeply how simple decisions taken and daily practices performed affected the ordinary lives of people. For that, a new breed of high quality research that sets itself free from the confines of culture history is now absolutely necessary, and I am glad that many papers in this volume offer this kind of valuable insight.

Notes

- 1 Anthony 2010, 45–8; Chapman 2010.
- 2 Maniatis *et al.* forthcoming.
- 3 Tsirtsoni 2010; Papadimitriou 2010.
- 4 Maniatis and Papadopoulos 2011; Papadimitriou and Tsirtsoni (eds) 2010.
- 5 Anthony 2010, 48–51.
- 6 Coleman 2000; Coleman 2011.
- 7 The concept can be traced back to Kroeber's emblematic essay "The Superorganic" (1917).
- 8 Goldenweiser 1917; Sapir 1917.
- 9 Malabou 2012, 1–3.
- 10 Malabou and Vahanian 2008, 10.
- 11 Halstead 2012.
- 12 Kotsakis 2006.
- 13 Triantaphyllou 2008.
- 14 Maniatis *et al.* forthcoming; Kotsakis and Halstead forthcoming.
- 15 Urem-Kotsou and Kotsakis 2007.
- 16 Chondroyanni-Metochi 2008; Urem-Kotsou *et al.* 2002.
- 17 Kotsakis 2009; Kotsakis 2008a.
- 18 Düring and Marciniak 2005; Düring 2006; Hodder 2010.
- 19 Pappa and Besios 1999a.
- 20 Andreou *et al.* 2001.
- 21 Aslanis 2010, fig. 3-4; Koukouli-Chrissanthaki *et al.* 2007.
- 22 Halstead 2012.
- 23 Triantaphyllou 2001, 137–41.
- 24 Urem-Kotsou and Kotsakis 2007, 237–41; Kotsakis *et al.* 2008.
- 25 Pappa *et al.* 2004; Urem-Kotsou and Kotsakis 2007.
- 26 Anthony 2010, 39.
- 27 Chapman 2010, 77.
- 28 These include GC-MS analysis of organic residues in pottery, isotopic analysis of residues and human and animal bones, in combination with technological analysis of material culture and bioarchaeology. The analysis is part of EXPLORE, a major research project carried out under the *Thalis* framework at the Aristotle University of Thessaloniki. The project ends in 2015.
- 29 Adrymi-Sismani 2007, pl. XI.
- 30 Coleman 2011.

- 31 Helms 1993.
- 32 Kotsakis 2010.
- 33 Halstead 2012, 31–2.
- 34 Andreou *et al.* 2001; Andreou 2010.

Village nucleation and centralisation in the Later Neolithic of South-Eastern Europe: A long-term, comparative approach

William A. Parkinson, William P. Ridge and Attila Gyucha¹

Introduction

This chapter examines long-term patterns of settlement nucleation and dispersal throughout the later Neolithic in South-Eastern Europe and examines regional variations in settlement patterns, especially as they relate to the organisation of trade networks. The work we present here builds upon previous research by W. Parkinson and A. Gyucha that explored the long-term trajectories of early agricultural settlements on the Great Hungarian Plain in the Carpathian Basin and in Eastern Thessaly (see [Fig. 3.1](#)).² By incorporating information from recent surveys in Southern Greece, we attempt here to examine the divergent social trajectories of northern and Southern Greece throughout the Neolithic period and into the Early Bronze Age. In contrast to the Thessalian Plain, where more-or-less stable networks of tell settlements were established during the Early Neolithic period and lasted throughout much of the Neolithic, early agricultural villages in the Peloponnese were few and far between, located almost exclusively in fertile inland river valleys near permanent water sources.

Unlike the more-or-less steady growth of sites throughout the Neolithic in Thessaly, many parts of the Peloponnese were all but abandoned during the Late Neolithic. The earliest substantial expansion of settlement in the Peloponnese did not occur until the Final Neolithic, when there was a dramatic increase in settlement activity, especially in previously uninhabited areas and near the coast.

Previous models attributed these settlement pattern changes in Southern Greece to shifts in the agro-pastoral economy, and to the adoption of plough agriculture.³ We present here a model that links these shifts to the establishment of a new system of exchange focused on the Southern Aegean and based on the emergence of coastal centres of trade. This pattern, established at the end of the Neolithic period, set the stage for the emergence of much larger coastal trading communities during the Early Bronze Age and ultimately forged the path for the emergence of bureaucratic states later in the Bronze Age.⁴

Methodological considerations: Multiple scales and comparative analyses

Explicit, comparative, regional studies should be a major focus of prehistoric archaeology, but despite the explosion of regional archaeological surveys and the exceptional value that a comparative approach can bring to our understanding of long-term social change, such studies rarely are conducted.

We advocate for a comparative regional approach that incorporates multiple scales of analysis – both geographic and temporal – to better understand the long-term changes that occurred in early agricultural village societies. By utilising multiple geographic and temporal scales we can gain a better understanding of how the social processes that occurred on a continental scale over thousands of years relate to smaller-scale processes that took place at the regional scale and over shorter temporal durations. The explicit comparison of social trajectories

at multiple geographic and temporal scales can reveal important variations that impacted economic and political organisation over the long-term.⁵

The comparison of information from different regional surveys is far from unproblematic. Differences in chronological and spatial resolution, sampling and collection strategies, and in topical focus, all contribute to the difficulties associated with comparing information from different regional surveys.⁶ Nevertheless, information from different projects can be used to discern general patterns that can be complemented with more fine-grained information about specific sites to compare long-term social trajectories.⁷

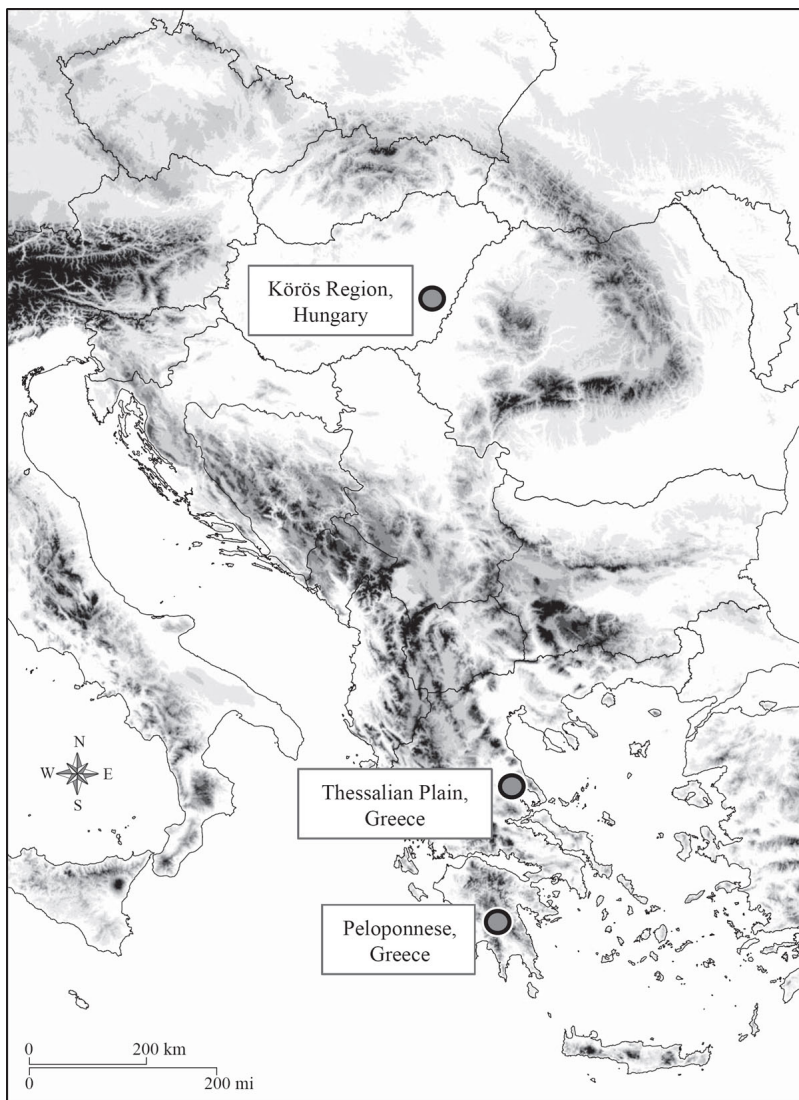


Figure 3.1. Map of the regions discussed in the text.

Comparative macro-regional trajectories: The Körös region and Eastern Thessaly

In a previous attempt to discuss the differences between different kinds of tell sites in South-Eastern Europe, W. Parkinson and A. Gyucha compared the long-term trajectories of Neolithic

settlement in the Körös region of the Great Hungarian Plain and Eastern Thessaly in northern Greece.⁸ Using data based on the “Archaeological Topography of Hungary”⁹ and from Gallis’ *Prehistoric Atlas*, which has been used extensively by scholars such as P. Halstead, C. Runnels, T. van Andel, and C. Perlès,¹⁰ Parkinson and Gyucha compared the long-term patterns of settlement in these two distantly related parts of South-Eastern Europe.

In Eastern Thessaly, tell settlements were established soon after the establishment of agricultural villages in the region and lasted, in some cases, throughout much of the Neolithic (see Fig. 3.2). Perlès and others have noted the regularity of the size and spacing of the sites across the Thessalian plains. From the end of the Early Neolithic, settlements were temporally durable and turned into tell settlements, indicating the existence of stable regional social networks and sustainable agricultural practices.¹¹ Many sites continued to be occupied in subsequent periods, and more were founded, resulting in a steady growth in the number of settlements over time.¹² The basic long-term pattern that emerges is one of stability, durability, and sustainability.

Table 3.1. Basic chronology for the Aegean (based on Demoule and Perlès 1993, fig. 2).

<i>Period</i>	<i>Approximate date BCE</i>
Early Neolithic	6500–5800
Middle Neolithic	5800–5300
Late Neolithic	5300–4500
Final Neolithic	4500–3200
Early Bronze Age	3200–2000

Table 3.2. Survey areas in the Peloponnese with number of sites in each period. To make data from different projects comparable, the Neolithic period is split between the EN/MN and LN/FN. For references, see footnote 18.

<i>Survey</i>	<i>Approximate area surveyed (sq km)</i>	<i>Number of Early and Middle Neolithic Sites</i>	<i>Number of Late and Final Neolithic sites</i>	<i>Number of Early Helladic sites</i>
Berati-Limnes Archaeological Survey	25	3	19	15
Argolid Exploration Project	44	2	8	39
Asea Valley Survey	19	5	4	4
Methana Survey Project	10	0	0	26
Laconia Survey	70	0	9	34
Nemea Valley Survey	50	7	1	11
Pyllos Regional Archaeological Survey	12	0	1	3
University of Minnesota Messenia Expedition	3800	0	7	21

In contrast to Eastern Thessaly, dispersed agricultural villages existed for about 700 years on the Great Hungarian Plain before tells were established at the end of the Middle Neolithic period, during the Szakálhát phase.¹³ When tells did finally form on the Great Hungarian Plain, they usually were incorporated into more complex settlements and settlement systems that included both tells and horizontal settlements.¹⁴ Unlike most Thessalian tell *settlements*, almost all of the Hungarian tells were special *places* within much larger settlements that served as focal centres for trade and exchange, as well as ritual.¹⁵ In many instances, it seems that the tell portion of the settlement was established first and that a sort of social gravity attracted people to live at or near that spot on the landscape. This period of nucleation during the end of the Middle Neolithic and throughout the Late Neolithic is associated with a drop in the overall number of sites in the region, until the tell sites were abandoned at the end of the Neolithic period and new, smaller, dispersed sites were established during the Early Copper Age (see [Fig. 3.3](#)).¹⁶

The variability between these two regional trajectories points to important differences in the social and environmental factors that affected the early agricultural villagers in these two distantly related parts of Europe. The Neolithic pattern in northern Greece indicates stability, durability, and sustainability, right from the onset. The trajectory in Hungary is characterised, for lack of better terms, by volatility, ephemerality, and unsustainability. Parkinson and Gyucha attributed much of this volatility to the more temperate unpredictable climate of the Great Hungarian Plain, as well as to the higher reliance throughout the Hungarian Neolithic

on wild resources.¹⁷ But we also believe there was a demographic component that contributed to the long-term stability of the Thessalian tell settlements. Specifically, the dense settlement network that was established in the region early in the Neolithic may itself have contributed to the continuity and stability of the Thessalian settlements by providing a critical density necessary for maintaining a well-organised social network throughout the plain over many generations. Such a dense, organised, network was not established on the Great Hungarian Plain until the end of the Middle Neolithic, with the establishment of the tell-based settlement clusters. And even then, the system was relatively short-lived, collapsing by the end of the Neolithic period. The establishment of a dense, organised, stable, long-lasting settlement network similar to that exhibited in Thessaly during the EN II phase does not seem to have developed on the Great Hungarian Plain until the middle of the Bronze Age, over two thousand years later.¹⁸

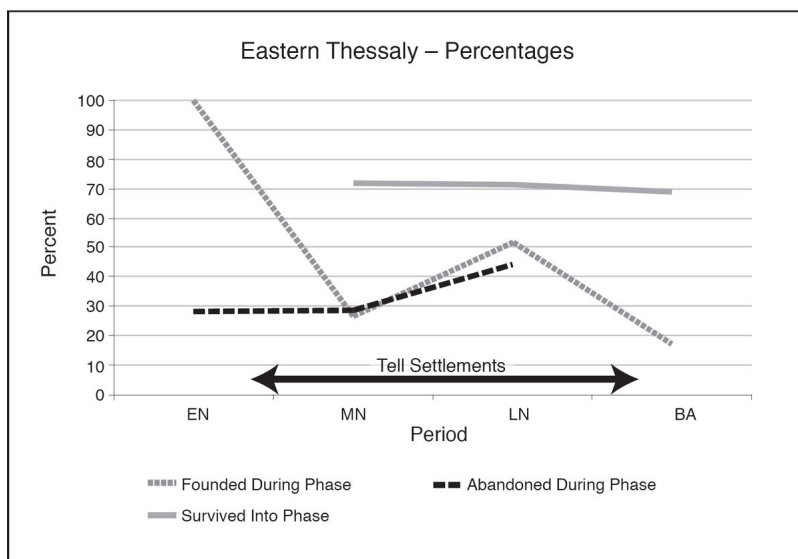
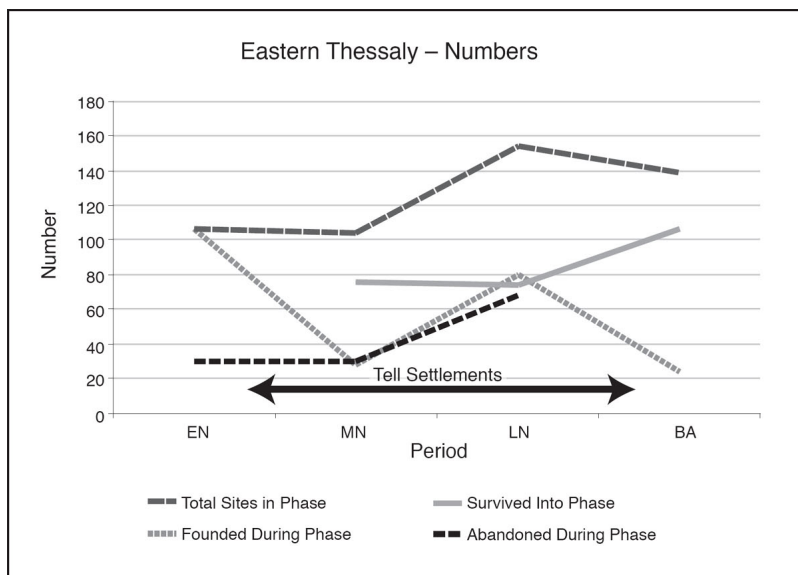


Figure 3.2. Diachronic settlement pattern trends in eastern Thessaly.

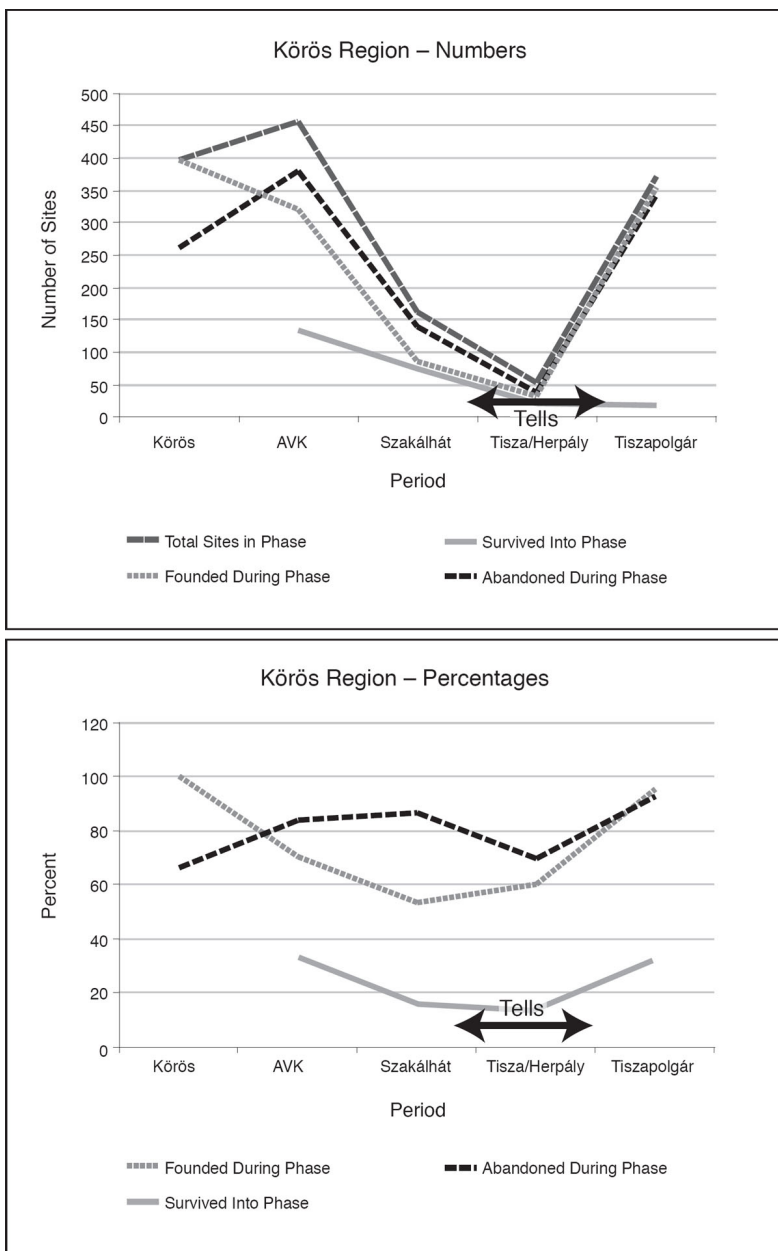


Figure 3.3. Diachronic settlement pattern trends in the Körös Region of the Great Hungarian Plain.

Comparative regional trajectories: Southern Greece

To compare Thessaly to southern Greece, we compiled information from several regional surveys in the Peloponnese (see [Fig. 3.4](#)) as well as from some of the excavations that have been conducted. This is by no means an exhaustive list, but it provides a decent geographic spread of information from inland and coastal areas, revealing interesting patterns that can be fleshed out as we add more information from surveys and excavations in different regions.¹⁹ The research we present here draws heavily from the work of M. Johnson, W. Cavanagh, J.P. Demoule and C. Perlès, P. Halstead, and many others who have discussed the divergent trajectories of social change in northern and southern Greece during the Neolithic and Bronze Age.²⁰

Considering the whole Peloponnese throughout the Neolithic, two basic trends emerge: one chronological and the other geographical. Chronologically, the most substantial settlement begins earliest in the northeast and appears to have spread to the south-west throughout the Neolithic, with the most numerous and extensive settlements always having been centred in the North-East Peloponnese. Geographically, a majority of substantial Neolithic sites were located in inland regions until coastal regions experienced a significant increase in settlement during the end of the Neolithic and into the beginning of the Bronze Age.²¹ As Pullen's contribution to this volume cogently demonstrates, the north-eastern part of the Peloponnese consistently exhibited prehistoric settlement patterns more similar to those of central and northern Greece, rather than to those documented elsewhere in the Peloponnese. This is likely due to the incorporation of the north-eastern part of the Peloponnese into an interaction sphere that throughout the Neolithic linked it to these more northern regions through the Corinthian Gulf, rather than through the Saronic Gulf.



Figure 3.4. Map showing the location of regional surveys on the Peloponnese discussed in the text (based on Rutter 2001, fig. 1, with modifications).

Some of the earliest sites in the Peloponnese were large villages located in the large fertile plains of the Argolid and in the Corinthia (North-East Peloponnese). Such large settlements were identified in the Berbati and Nemea surveys, and include other sites such as Lerna, Corinth, and Prosymna.²² Outside of the North-East Peloponnese there is considerably less evidence for Early Neolithic activity, an exception being the site of Asea in Arcadia. The site of Franchthi in the Southern Argolid – which had been used since the Palaeolithic and continued in use through the entirety of the Neolithic – is the only known site in the Southern Argolid during the Early Neolithic.²³

The pattern of large settlements on good arable land continued into the Middle Neolithic, with the overall number of sites increasing in many regions. In addition, the extent of many sites that previously had been inhabited also expanded.²⁴ Multiple new sites were established in both the Berbati and Asea regions and

during the Middle Neolithic the first site appeared in Laconia at the larger open-air site of Kouphovouno and at the cave site of Alepotrypa in the Mani, which was being used at least for burials during the Middle Neolithic.²⁵ Further to the south-west, however, the only evidence for pre-Late Neolithic activity in Messenia is a few sherds of Middle Neolithic ware at one cave site.²⁶

By the Late Neolithic there was a drastic change in settlement throughout the Peloponnese characterised by a significant decrease in the number of sites. Both the Nemea and Asea valleys – both of which were more densely settled in the Middle Neolithic – experienced a significant decrease in the number of sites during the Late Neolithic. Many Peloponnesian sites that had expanded during the previous period were partially or completely abandoned by the Late Neolithic. This pattern is evident in the Nemea, Asea, and Berbati survey areas as well as at the sites of Mycenae, Tiryns and Lerna in the Argive Plain, Corinth on the north-east coast, and at the Laconian site of Kouphovouno.²⁷

The Late Neolithic shifts in settlement pattern in the Peloponnese correlate with two other changes in land use apparent in Southern Greece at the time. The Late Neolithic marks an increase in the number of sites in the Cyclades, with islands like Naxos and Mykonos experiencing denser settlement.²⁸ There also was a marked increase in the use of caves throughout the Greek Mainland and islands during the Late Neolithic.²⁹ Both of these processes – which continued into the succeeding Final Neolithic period – have been used as evidence for the adoption of new agro-pastoral techniques, including an increased reliance upon animal husbandry, as well as the adoption of the plough and dry-land farming.³⁰

The pattern in the Peloponnese changes dramatically during the Final Neolithic and continues into the Early Bronze Age. During this time, the settlement trajectory is characterised by a significant increase in the number of sites across the Peloponnese. A large number of these new sites were small and dispersed

compared to their Early and Middle Neolithic predecessors and a substantial increase in activity occurred in areas that previously had been unsettled, especially in agriculturally marginal areas.³¹ Also, many sites that experienced a contraction or abandonment at the end of the Middle Neolithic were reoccupied or expanded during the Final Neolithic.³² During the end of the Neolithic, Messenia began to experience significant activity and the large site of Ayios Demetrios was established in northern Messenia.³³

By the Early Helladic I period the number of sites throughout the Peloponnese had increased even more. While there was a significant increase in the number of sites in the inland valleys, such as in Nemea and Asea, the most marked and dramatic increase in settlement occurred in coastal regions. This is well documented in the Southern Argolid and Methana surveys, as well as in Southern Laconia and in Messenia (see [Fig. 3.5](#)).

The increase in the number of sites during the Final Neolithic/Early Helladic coincides with a break in the use of many of the caves in Southern Greece. Cave activity had reached its peak during the Final Neolithic, but most of the caves that were used in the Neolithic ceased to see activity into the Early Bronze Age; even the sites of Franchthi and Alepotrypa, which had become regionally significant locations during the Final Neolithic, were abandoned at this time.³⁴ Also, corresponding with the growth in the coastal regions of the Peloponnese, there was an increase of widespread habitation on many of the islands in the Southern Aegean, with the establishment of new sites, existing settlements growing in size, and settlement on new islands that previously had not been settled.³⁵

Comparative macro-regional trajectories: Southern Greece and Eastern Thessaly

In contrast to the durable, stable settlement pattern network that was established very early during the Neolithic in Eastern Thessaly, the overall pattern in the Peloponnese was characterised

by very few, and generally isolated, sites throughout the Early and Middle Neolithic. But similar to the Thessalian pattern, the earlier Neolithic Peloponnesian sites – which mostly occurred in the north-eastern part of the Peloponnese – were generally large, stable, and long lasting.³⁶ The trajectories of these two macro-regions diverged drastically by the Late Neolithic with settlement density having reached its apex in Thessaly, while the Peloponnese experienced a reshuffling in settlement location and a general decrease in the number of sites. In the Final Neolithic and Early Bronze Age, Eastern Thessaly seems to have experienced a period of nucleation with the number of sites decreasing slightly as site size generally increased.³⁷ The opposite appears to have occurred in the Peloponnese during this time, as the landscape – particularly coastal areas – was dotted with smaller, more dispersed, and short-lived settlements.³⁸

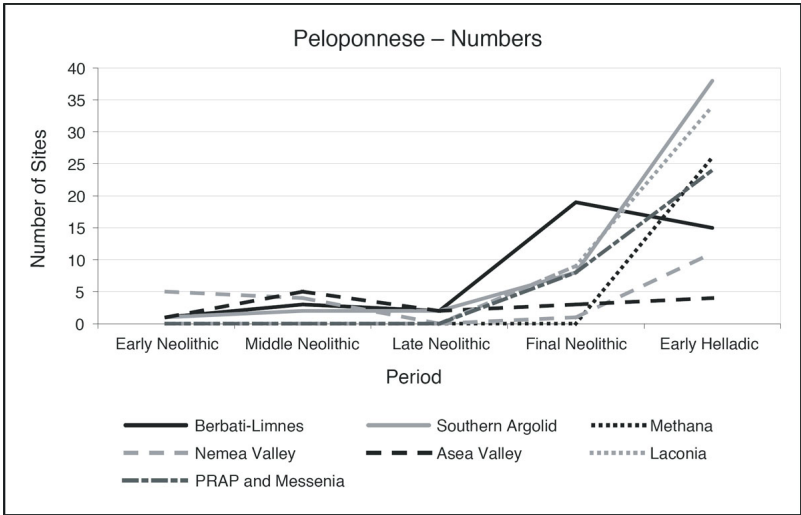


Figure 3.5. Diachronic settlement pattern trends on the Peloponnese.

Overall, multi-component tell settlements – which throughout the Neolithic created a durable, dense, stable settlement network on the Thessalian Plain – developed only sporadically – and largely in isolation – in the Peloponnese throughout the Neolithic.

Nothing approaching the dense network of tell settlements appeared in the Peloponnese until well into the Bronze Age, when the gravity of exchange shifted towards the Southern Aegean.

Conclusions: Long-term Neolithic trajectories

The differences that characterise these more variable Peloponnesian patterns from the more stable settlement patterns in Thessaly generally have been attributed to three main factors: water, land, and agro-pastoral techniques. Simply put, the small number of sites during the Early and Middle Neolithic has been attributed to the lack of available water and the lack of large fertile plots of land in the Peloponnese.³⁹ But, as W. Cavanagh noted, although springs are rare in the Peloponnese, they are not as rare as Neolithic village sites. This led him to suggest that nucleated Neolithic villages in the Peloponnese may have controlled relatively large territories.⁴⁰ The expansion of settlement into previously unoccupied areas at the end of the Neolithic has been attributed to changes in herding strategies and to the adoption of the plough, which permitted the cultivation of new, previously not arable, tracts of land.⁴¹ While one or both of these factors could have contributed to the changes in settlement distribution, they do not adequately explain the broader picture of settlement relocation, particularly the shift away from previously settled inland valleys towards previously unoccupied areas closer to the coast.

We suggest that in addition to these factors, the Final Neolithic expansion of settlement in coastal regions in Southern Greece was also related to the reorganisation of trade networks throughout the Aegean and specifically to the establishment of coastal settlements that operated as focal points of exchange in a network that integrated the coastal areas of the mainland into the now populated islands of the Southern Aegean. Established sometime around the end of the Neolithic, this new system included sites near the coast where specialised goods were manufactured and

distributed inland. This is most obvious in the production of obsidian blades which by the Early Bronze Age were produced at some sites along the coast of the mainland and were traded out from there,⁴² but it likely also occurred with other crafts as well, such as ceramic and metal production. During the later Neolithic, there was a marked increase in regional variation in ceramic styles that was related to a reorganisation of exchange spheres.⁴³ Incipient metallurgy also began in the Aegean and metal items are found throughout the Aegean, such as the silver items from Alepotrypa, which indicate craft specialisation and far-flung networks of exchange.⁴⁴

Coastal centres of specialised production are well represented during the Early Helladic period – at the Phourni Focus in the Argolid, at Manika in Euboea, at Korphos in Southern Corinthia, at Lerna in the Argive plain⁴⁵ – but these kinds of sites likely were established during the chronologically muddy Final Neolithic-Early Helladic I period and their identification has been hampered by the lack of chronological resolution and stratigraphic sequences for these periods throughout much of the mainland.⁴⁶

The reorganisation and intensification of coastal trade networks in the later Neolithic is further supported by the depictions of long boats in rock art from Strophilas on Andros, which apparently dates to the Final Neolithic.⁴⁷ Long boats would have allowed for improved open-water navigation and increased carrying capacity – two aspects that would have been greatly beneficial to Neolithic traders between the mainland coasts and the islands of the Southern Aegean.

This new organisation, which for the first time successfully incorporated the Peloponnese into a flourishing trade network linked through the islands of the Southern Aegean, eventually laid the groundwork for the establishment of important coastal centres during the EH II Period, and ultimately created the framework for the emergence of bureaucratic states later in the Bronze Age.

Notes

- 1 We would like to thank the organisers of the conference, and especially Ž. Tankosić and F. Mavridis, for inviting us to participate. We also thank K. Sarri for all her help in making everything happen.
- 2 Parkinson and Gyucha 2012.
- 3 Alram-Stern 2002, 26; Cavanagh and Crouwel 2002, 125; Halstead 1994, 202; Halstead 1996b; Johnson 1996a, 284–6; Runnels and van Andel 1987.
- 4 Parkinson and Pullen forthcoming.
- 5 Parkinson and Gyucha 2012, figs 2 and 3; see also Parkinson and Galaty 2007.
- 6 Bintliff *et al.* 1999; Bintliff *et al.* 2002; Davis 2004.
- 7 Cavanagh 2004; Wright 2004.
- 8 Parkinson and Gyucha 2012.
- 9 Ecsedy *et al.* 1982; Jankovich *et al.* 1989; Jankovich *et al.* (eds) 1998.
- 10 For examples of scholars that have used the data from Gallis 1992, see Halstead 1999; Perlès 2001; van Andel and Runnels 1995.
- 11 Using nearest-neighbor analysis and Thiessen polygons, Perlès 1999 and Perlès 2001, 121–51, examined the settlement pattern of Eastern Thessaly during the EN II period.
- 12 Parkinson and Gyucha 2012; van Andel and Runnels 1995; also see Halstead 1994 for broad discussion.
- 13 Goldman 1984; Kalicz and Raczky 1987.
- 14 Chapman 1988; Chapman 1997a; Makkay 1982; Raczky 2009.
- 15 Raczky 1995; Raczky and Anders 2008; Raczky and Anders 2010.
- 16 Gyucha 2009; Parkinson 2006.
- 17 Bartosiewicz 2007; Whittle and Bartosiewicz 2007.
- 18 Duffy *et al.* 2013.
- 19 Settlement patterns for the different survey regions are based on data from the surveys' publications, particularly site catalogues. References for the sources of data for each survey project follows: Berbati-Limnes (Forsén 1996; Johnson 1996b; Wells and Runnels (eds) 1996); Laconia (Cavanagh and Crouwell 2002; Cavanagh *et al.* (eds) 1996; Cavanagh *et al.* (eds) 2002; Shipley 1996a; Shipley 1996b); Southern Argolid (Runnels and Munn 1994); Nemea (Cherry *et al.* 1988; Johnson 1996a; Wright *et al.* 1990); Methana

(Mee and Forbes (eds) 1997; Mee and Taylor 1997; Mee *et al.* 1997); Asea (Forsén *et al.* 2003a; Forsén *et al.* 2003b; Forsén and Forsén (eds) 2003); Pylos (Davis *et al.* 1997; Heath (ed.) 2005); Messenia (McDonald and Rapp (eds) 1972; McDonald and Simpson 1972).

20 Andreou *et al.* 2001; Cavanagh 2004; Demoule and Perlès 1993; Halstead 1994; Johnson 1996a.

21 The lack of chronological resolution and certainty between the Late Neolithic and Final Neolithic periods and the Final Neolithic and the Early Helladic I periods between different regions confounds the clarity of the settlement patterns in the Peloponnese, but the general patterns of the various regions are discernible. For discussions on the sequencing of these periods see Phelps 2004; 65, 126; Pullen 2008, 21; Rutter 2001, 110–11.

22 For Lerna, Corinth, and Prosymna see Johnson 1996a, 275–9, as well as Fig. 3.272.

23 Jameson *et al.* 1994.

24 This pattern is seen in many of the survey areas and also discussed in Johnson 1996a, 283.

25 For Kouphovouno see Cavanagh 2009, 57; Cavanagh and Crouwel 2002, 121; Mee 2009.

26 McDonald and Simpson 1972, 131.

27 For Mycenae, Tiryns, Lerna, and Corinth see Johnson 1996a, 275–9; for Kouphovouno see Mee 2009, 43.

28 Broodbank 2000, particularly fig. 34, 122.

29 Cavanagh 2009, 57; Demoule and Perlès 1993, 388; Johnson 1996a, 281–2; Tomkins 2009.

30 See note 2 above.

31 For general discussions see Pullen 2008; Tomkins 2010.

32 This pattern is exhibited in many of the survey areas. See also Johnson 1996a, 286.

33 Zachos 2008, 16.

34 Johnson 1996a, 286; Phelps 2004, 104.

35 See note 27 above.

36 Cavanagh 2004; Halstead 1994.

37 Gallis 1996b, 37; Halstead 1994, 200.

38 Alram-Stern 2002; Pullen 2008.

39 Johnson 1996a; Halstead 1994.

- 40 Cavanagh 2004, 181.
- 41 See note 2 above.
- 42 Perlès 1992, esp. 145–7.
- 43 For information regarding increased variation of ceramic styles in LN and FN see Phelps 2004, 65. For a discussion of how regional variation in goods relates to exchange see Perlès 1992, 138–41.
- 44 Zachos 2007, 172–3.
- 45 Hartenberger and Runnels 2001; Karabatsoli 1997; Kardulias and Runnels 1995; Parkinson 2010; Parkinson and Pullen forthcoming; Runnels 1985.
- 46 See note 20 above.
- 47 Papageorgiou 2008b, 202.

Greece in the 5th and 4th millennia BC: Researching the “missing” 4th millennium

*Ioannis Aslanis*¹

Introduction

My original intention was to present in this paper an overview of the development of prehistoric Greece during the 5th and 4th millennia BC derived from my current research.² But, in the space available, this cannot be done with the necessary clarity. The issues are numerous and varied, and require thorough presentation.

For example, while it is generally accepted that during the 5th and 4th millennia, from Mesopotamia to Northern Europe, significant changes (both positive and negative) occurred in economy, society and settlement patterns, many archaeologists remain of the opinion that in Greece the Neolithic way of life, which began in the 7th millennium BC, continued without any substantial change until the end of the 4th millennium (beginning of the Early Bronze Age, *ca.* 3200 BC).³ These same scholars likewise treat such substantial innovations as fortification of settlements, or the introduction of metallurgy in the early 5th millennium, as part of the Greek Late Neolithic evolution. But, by regarding such innovations as Neolithic, their interpretative dynamic is underestimated and by posing questions related to the

Neolithic and not to the Chalcolithic, a more advanced period of Greek Prehistory, the research is in a way disorientated.⁴

Among the reasons for this attitude, which ignores developments in the neighbouring regions of the Balkans and Asia Minor, are: 1) the fact that the material remains of the 5th millennium BC are more closely related to the Neolithic period of the 6th millennium than to the Early Bronze Age of the 3rd millennium, (2) the break in occupation of the lowland regions of Greece during the 4th millennium, and (3) the limited presence of 4th millennium ceramic finds, which with their distinctive character could document convincingly the transition from the Chalcolithic to the Early Bronze Age.

Instead of discussing either the significant and substantial changes which occurred in the 5th and 4th millennia BC, which far outweigh the Neolithic stage of development, or whether and why this period should be called the Chalcolithic,⁵ the present article addresses developments in Greece only during the 4th millennium, because it is in this millennium that the secret of the transition from the Neolithic of the 6th to the Bronze Age of the 3rd millennium is to be discovered.

General developments

Nevertheless, the 5th millennium BC is involved in this process as well. It saw the flourishing in Mesopotamia and Asia Minor of the Ubaid and Beycesultan cultures, which were culturally and technologically completely different from their predecessors.⁶ Already in the last quarter of the 6th millennium we find fortified settlements and more extensive use of metal, while the vases adopt angular shapes alluding to metal prototypes, as well as decorative motifs with different organisation and new themes. At the same time, Greece enters the last stage of the Neolithic period (LN I or pre-Dimini phase), following the decline of the Middle Neolithic Sesklo culture. In this phase, especially in the ceramics, we increasingly find features that had previously already appeared in

Asia Minor.

The beginning of the 5th millennium BC finds Greece in a creative fervour, which continues in its second quarter. In Thessaly, the largest plain in Greece, we observe the development of the well-known Dimini culture. Settlements increase in number and are reorganised, while a number are fortified. On the technological front, we can follow, for example, the development of metallurgy and the growth of specialisation apparent in the Dimini ceramics. The picture is similar in other, smaller lowland regions of Greece.⁷

In the second half of the 5th millennium BC this rapid evolutionary process seems to have been interrupted. The density of settlements in lowland regions declines, while new settlements are established in hilly or semi-mountainous areas. The Dimini culture declines. This phenomenon seems to last until the end of the 5th and the beginning of the 4th millennium, when the plains of Greece seem to have been abandoned, with a few exceptions.⁸

In the same period a similar phenomenon can be observed outside Greece, too, especially in the Balkans and perhaps in Asia Minor.⁹ It is attributed to changes in climate and a rise in sea level, as well as to human impact on the environment.¹⁰ In my opinion, the first two factors are associated with the global rise in temperature that caused climate change. By contrast, the influence of the human factor is too limited to explain phenomena that affect large areas (from Mesopotamia to Northern Europe) and climate zones.

Geological and palaeoclimatological data suggest that, with the onset of the Holocene era, the climate grew warmer. The combination of high temperatures and humidity created ideal conditions for a rural economy such as that which prevailed in the Neolithic.¹¹ These ever more favourable climatic conditions appeared gradually, zone by zone, spreading from south to north, starting from North Africa which at the beginning of the Holocene was green steppe.¹² A little later in Mesopotamia, the Neolithic

agricultural revolution began and gave rise to significant new cultures.

In the last quarter of the 6th millennium BC, North Africa became a desert. In Mesopotamia, the climate became very hot and dry, almost unsuitable for agriculture. However, thanks to the development of irrigation the region continued to be occupied and uninterruptedly supported cultures, those of Ubaid in the 5th millennium and Uruk in the 4th. The latter is characterised by the appearance of the first urban centres, and leads into the early kingdoms of the 3rd millennium.¹³

At the end of the 6th millennium, southern Europe too was affected by these favourable climatic conditions. In the first half of the 5th millennium this had a positive effect on Aegean and continental Greece, causing population growth and increased settlement density.¹⁴ In the Balkans these favourable conditions culminated in the second half of the 5th millennium, with numerous settlements appearing in lowland areas.¹⁵ In the same millennium Northern Europe became warm enough for it to enter the Neolithic mode of production.

With such favourable climatic conditions in Greece, one would expect continuous growth in both settlements and population. Instead, from the second half of the 5th millennium there is a gradual decrease in lowland settlement density, which continues in the 4th millennium.¹⁶ Some reasonable interpretations have been suggested to explain this phenomenon, which lasts until the end of the 4th millennium, but none has settled the problem.¹⁷ In the present paper a new interpretation is presented, which is largely a combination of previously formulated views.

A new interpretation of the lowland settlement density decrease in 5th and 4th millennium BC Greece

It should be emphasised that the available archaeological data are not spread evenly across Greece. Their absence from the

mountainous regions of the mainland is particularly evident, which lends the proposed interpretation a necessarily theoretical tinge. The picture which is here offered for the mountainous part of mainland Greece can serve as a working hypothesis, which may one day be verified, but only if archaeological research takes a new direction, to be outlined in due course.

The positive effect of climatic warming lasted until about the middle of the 5th millennium BC. After that, with the temperature remaining high and soil moisture continuously reduced, a once favourable climate was transformed into a disaster for the agrarian economy. Lowland settlements were gradually abandoned. Settlements which appear to have survived in the lowlands of mainland Greece were few and located in areas with particularly favourable hydrological conditions (water sources).

There is evidence from the second half of the 5th millennium BC for gradual change in the whole economic system, settlement pattern and social organisation that had prevailed hitherto. According to the archaeological evidence, settlements at the end of the 5th millennium were small, fortified, and often located in inaccessible areas. The surrounding tracts of farmland were few and small. The economy started moving towards pastoralism. This picture has been described already by colleagues with reference to the particular areas in which they have conducted research.¹⁸

According to H. Todorova, at the end of the 5th and in the 4th millennia BC this same negative climatic change struck the Central Balkans and the climatically sensitive steppes north of the Black Sea, leading to similar results: abandonment of the plains and population movements.¹⁹ In other words, the same climatic stimulus led to the same human response, with a difference: in mainland Greece, which is primarily mountainous, people did not have to go far or penetrate other settled areas. They simply did the obvious: they moved from the plains into neighbouring mountainous regions where, due to the altitude, climatic conditions were still favourable.²⁰

Today, we possess minimal data on systematic inhabitation of the mountainous regions of mainland Greece during the 4th millennium BC. Apart from general references from surveys concerning Late or Final Neolithic finds,²¹ archaeological data is limited to the intensive use of caves, which began already from the second half of the 5th millennium, and traces of settlements found near caves or elsewhere, for example at Doliana in Epirus.²²

If this proposed working hypothesis is viable, archaeological research should be able to identify new data. But this can only happen if investigation focuses on high-altitude mountain areas, which archaeology has so far neglected. Large or small upland plains and mountain locations near springs, rivers or lakes were, in the author's estimation, the areas most suitable for the establishment of new settlements. The author's assessment and proposal merge to suggest that in order to satisfactorily document and finally resolve the problem of the 4th millennium BC in mainland Greece, archaeological research should focus on mountain areas.

In this author's view this change, which began in the second half of the 5th millennium BC, continued and accelerated in the 4th millennium. Potential farmland in the mountains was limited, and did not favour the creation of populous agricultural settlements. The economy switched over to pastoralism, earlier social structures broke down, and the new society that emerged consisted of small groupings.

Under these new conditions, diet was based primarily on animal products, a change which was consummated gradually from the second half of the 5th millennium BC.²³ It must have continued and prevailed completely among the highlanders of the 4th millennium. Given that the biggest problem with animal products is how to preserve them, deep caves, thanks to their steady internal temperature, were appropriate storage areas.²⁴

The adoption of pastoralism in the 4th millennium BC had a substantial impact on domestic wares. These needed to be light,

made of tough, easily transportable materials. Pottery became less important, without being abandoned completely, and declined in both technological and aesthetic sophistication.

Chalcolithic families, who at the end of the 5th and in the 4th millennia BC had been engaged exclusively in animal husbandry were necessarily in constant motion, either horizontally or vertically. In the case of horizontal movements, the morphology of mountainous Greece favours the north–south axis. Although not much is known about the material culture of the highlanders, there is evidence that their movements brought stockbreeders into contact with other groups from the Northern Balkans, where climatic conditions had been less devastating. Exchange of material and cultural goods can be taken for granted. Such contacts already started from the end of the 5th and continued in the 4th millennium, as evidenced in the archaeological finds from various regions of Greece and Hungary, revealing close relations between the cultural complexes of Attica-Kephala, Tiszapolgar and Bodrogkeresztúr.²⁵

Apart from movements along the north–south axis, stockbreeders also moved seasonally from mountainous to lowland areas, where they wintered.²⁶ Their settlements would have been located on the edge of the plains and in the surrounding hilly areas, given suitable hydrological conditions. Settlement patterns will follow the hierarchical social structure of the pastoralists, which is reflected in the creation of a central building in the middle of a small, often fortified village.

Such patterns are encountered in EBA settlements (Lerna, Troy). However, they are very likely to have existed earlier, as a hierarchised social structure must have emerged already at the end of the 5th and the beginning of the 4th millennium BC, when the economy switched over to pastoralism. The “acropolis” of Sesklo, of uncertain date, could represent the winter quarters of mountain pastoralists, perhaps to be assigned to the 4th millennium before the beginning of the EBA.²⁷ Similar settlements

may have existed in other low-lying areas, particularly in the western part of mainland Greece, where rainfall is greater.²⁸

It seems likely that the situation in the previously densely populated areas remained extremely unfavourable. Hydrologically disfavoured regions must have remained unoccupied for much of the 4th millennium BC. Small isolated groups from the north took the opportunity to move in. Not knowing the difficult climatic conditions, they attempted to establish new installations, but without luck. One of these was detected in Mikrothives in Thessaly, with ceramics of northern origin, maybe the Hungarian plain.²⁹ But it was not the only one. Other groups, perhaps from the North-Eastern Balkans, seem to have tried to penetrate the same areas. These too either did not survive or were, at best, absorbed, leaving behind their anthropomorphic stone stelae, which have been found in Western Macedonia, Thessaly and the island of Thasos.³⁰

In the author's opinion this is the most probable picture of the Chalcolithic populations in the mountain areas of mainland Greece during the 4th millennium until the beginning of the Early Bronze Age.

By contrast, in Aegean Greece the picture during the same period is very different. Here climatic conditions also exert significant influence, but in a different way from mountainous mainland Greece. This is due to the flow of cold dry air masses from the Black Sea to the Aegean Sea, where they encounter warmer, humid air masses. This results in increased rainfall or snowfall in the Aegean islands, from Samothrace and Thasos to Crete, and along the coasts from Chalkidiki to Attica.³¹

Despite the high temperatures which prevailed during the 4th millennium BC in the lower parts of South-East Europe, the Aegean area must have provided, from a hydrological point of view, better living conditions at least for limited populations. Therefore, their residents never had to leave. They too were forced to turn to pastoralism, but also to an equally important source of

food: fishing. Moreover, there was an additional reason for continuing population stability, namely the existence of deposits of various metals, not to mention obsidian, which had already been known in earlier periods.³²

There is good archaeological evidence for settlement in these areas, which constituted the cultural complex known as Aegina–Attica–Kephala, flourishing in the second half of the 5th and part of the 4th millennium BC. It is no coincidence that in the 4th millennium – with one exception, Eutresis – all known settlements that according to H. Parzinger yield a reliable and continuous stratigraphy from the Chalcolithic to the Bronze Age, are located on the Aegean coasts and the islands.³³

It can be argued, therefore, that human activity in the Aegean islands from Thasos to Crete was continuous, and that cultural traditions were preserved intact and carried over into the Early Bronze Age. Thus, it is no wonder that the Cycladic civilisation, the first civilisation of the Bronze Age in Greece, appears precisely on the Aegean coast and islands and not in mainland Greece, and adopts elements, among them stylised figurines, metallurgy, fortified settlements and ceramics, which were introduced already in the Chalcolithic 5th millennium and, of course, have nothing to do with the Neolithic 6th millennium.

Obtaining archaeological documentation of continuous human activity throughout the 4th millennium BC on the Aegean coast and islands is just a matter of time and research priorities. Settlements like Strofilas on Andros, or the traces of 4th millennium metallurgical activity at Lavrion and elsewhere, should not be treated as isolated finds but as the first links in a chain of evidence which will eventually demonstrate continuous human presence in the area.³⁴ If the changes which occurred during the 4th millennium are particularly evident in one particular area, this is the ceramic record. It is this that makes the Chalcolithic of the 5th millennium and the Bronze Age of the 3rd millennium look so different.

Towards the end of the 4th millennium BC, climatic conditions began to change, thanks mainly to a drop in temperatures.³⁵ The mainland mountaineers began to return to the lowlands. But they were no longer the farmers and skilled craftsmen – metalworkers or potters – that their ancestors had been in the Chalcolithic 5th millennium. They had become mountain-dwelling stockbreeders with a hierarchical social structure.³⁶

Often, they chose to establish themselves atop the old settlements of the 5th millennium BC, either simply because they considered the spot appropriate or because they retained some memory of the past. Their settlements are small, naturally or artificially fortified. The new social structure with its hierarchical organisation is reflected in the settlements, which have a central building maybe already established earlier (as at Sesklo). This is perhaps the best way to understand the “acropolis” of Dimini, which is dated to the beginning of the EBA.³⁷ Their material culture, especially pottery, seems to have been influenced by the Baden culture.³⁸

By contrast, on the Aegean islands and coasts human occupation seems to have been constant. The organisation of settlements in the Early Bronze Age does not seem to have the aforementioned strict hierarchical structure of the stockbreeders, but retains the community organisation of the Chalcolithic era (as at Poliochni Nero, Emborio on Chios, and Pevkakia).³⁹

Conclusions

In summing up, it becomes clear that from Mesopotamia to South-Eastern Europe the climate had a strong impact on the agricultural economy of the Chalcolithic era during the 5th and 4th millennia BC. In the opinion of many researchers, including the author, in the aforementioned millennia the climate initially had a beneficial effect, causing an increase in settlements and population. This then turned negative, causing a decrease of settlements and eventually either short- or long-term abandonment of the

lowlands. The only region showing continuous habitation despite negative weather conditions was Mesopotamia, because during the Ubaid culture in the 5th millennium irrigation networks were developed, making continuous cultivation of the lowlands possible.⁴⁰ This continuous evolution created the Uruk culture in the 4th millennium, which led in turn to the first Hittite kingdoms in the 3rd millennium.

South-East Europe, Greece and the Balkans did not enjoy the continuity we observe in Mesopotamia, especially in the 4th millennium BC. In the author's opinion, if similar geomorphological and hydrological conditions (flat plains and substantial rivers) had prevailed in these regions, and if irrigation networks had also been developed, their evolution would also have been different and maybe the Minoan culture and its palaces in Crete would have appeared a millennium earlier in the Early Bronze Age.

The proposal advanced here for how we should understand the 4th millennium BC opens the way for a review of wider issues, such as the descent of the Indo-Europeans into Greece and their relation to the local population. Linguistic and other specialists suggest that Indo-European tribes appeared in Greece at the end of the 4th millennium and during the 3rd, in the Early Bronze Age.⁴¹ However, for a massive mobilisation of new population groups coming from the north into the plains of Mainland Greece in the second half of the 4th millennium there is no archaeological evidence. It remains to be investigated whether such a mobilisation occurred through the mountains of the mainland, or if the stockbreeders, already resident there, were merely exposed to cultural influences from the north as a result of their movements along the north-south axis.

In the 3rd millennium BC during the Early Bronze Age, after the initial impact of the Baden culture, mainland Greece followed an evolutionary path increasingly different from that of the Northern and Central Balkans. Had there been a massive

population invasion from the north to the south, it would certainly have left plenty of traces in archaeology.

If the mountain stockbreeders of mainland Greece came into contact with Indo-European populations from the north, this should have happened as a result of their movements along the north-south axis mainly during the 4th millennium BC, in the Chalcolithic, and less so during the 3rd millennium, in the Early Bronze Age. If there was a population movement, it must have proceeded only from the highlands to the lowlands of mainland Greece at the end of the 4th millennium, when the climate improved and the plains became fertile again.⁴² The mountaineers descended to the plains, and began to occupy themselves once more with agriculture.

Linguistics and other specialists suggest that at the end of the fourth millennium people began to venerate a hero associated with plant life, who was believed to have bestowed on mankind the cultivation of wheat and the production of bread. The hero's name, which denotes a leafy or blooming branch, was Pelasgos. His worshippers were called Pelasgians. They are located mainly in the Aegean islands and its coastal areas. In the author's opinion these could have been those same chalcolithic population of the fifth millennium, who remained and survived due to the more favorable climatic conditions in the region and maintaining the chalcolithic tradition alive, created in the Cyclades the homonymous civilization at the beginning of the Bronze Age.

Notes

1 I extend my warmest thanks to my colleague G. Fowden, who supervised the translation of this paper.

2 The project, entitled "The Chalcolithic Era in Greece", was developed by the author in 1992 as part of the research project "Study of the Early Balkan Populations and Cultures" started in 1985 by M.B. Sakellariou in the Institute for Greek and Roman Antiquity (KERA) of the National Hellenic Research Foundation, Athens. Results of this research have been published from time to

time in the form of articles or conference papers. The final conclusions will be presented in a synthetic volume.

3 e.g. Coleman 1977, 109, tab. 8.

4 The questions raised during the excavation of a Neolithic settlement are different from those raised for a settlement of the Chalcolithic or Bronze Age. For example, by excavating a Chalcolithic settlement in the way that one would a Neolithic, trenches are placed mainly in its central part, very rarely on the periphery, where fortification constructions lie. Therefore, the majority of fortifications belonging to the Chalcolithic Period so far identified were located by luck thanks to large infrastructure projects, and only a few as a result of targeted excavations. This is one of the main reasons why the author of this paper insists on using the term Chalcolithic for the period between 4800 and 3200 BC (Dimini and Rachmani phases) of Greek Prehistory. Use of this term is also supported by other researchers (e.g. Pullen 2003, 29; Zachos 2010, 90).

5 For the cultural character of the 5th and 4th millennia BC, the use of the term Chalcolithic and its time scale in Greece, see Aslanis 1993, 133–45; Aslanis 2002, 37–46.

6 These replaced the previous Halaf and Çatal Hüyük cultures. See Sabah-Abboud 1985; Yakar 1985.

7 For 5th millennium BC Greece see Papadimitriou 2010.

8 Gallis 1992, 226, figs 5, 7, 9.

9 The influence of climate on cultural developments in the Balkans during the 5th and 4th millennium was first described by H. Todorova in the late 1980s (Todorova 1989, 25). For her most recent presentation see Todorova 2007. For conflicting arguments see for example Wickens 1986, 132–3.

10 Anthony 2010, 29.

11 Johnsen *et al.* 2001, 299.

12 Gabriel n.d., 22.

13 Issar 2004; Potts 1977; Sabah-Abboud. 1985.

14 Such favourable climatic conditions continue in Thessaly during pre-Dimini and Dimini phases (LN I–II): see Gallis 1992, 226, figs 5, 7, 9.

15 Kodjadermen-Gumelnitsa-Karanovo VI Culture (Todorova 1978).

16 Eastern Thessaly is a good example (Gallis 1992, 226, figs 5, 7,

9).

17 For a summary presentation of all these views, see Tsirtsoni 2010.

18 For Euboea see Sampson 1981. For Argolis see Pullen 2003.

19 For Bulgaria see Todorova 2007, 4. For the Black Sea see Balabanov 2007, fig. 3. For the Kurgan movements and the Kurgan Hypothesis see Gimbutas 1956; Anthony 2007; Mallory 1991.

20 The vertical temperature variation is 0.64° C/100 m.

21 e.g. Pikoulas 2008, 253.

22 For inhabitation of mountainous regions see Douzougli and Zachos 2002. For use of caves see Wickens 1986.

23 This change in diet has already been identified and described as a part of the secondary products revolution (Sherratt 1981).

24 Sampson 1993a, 268. Preservation of sensitive products such as meat was possible in South-East Europe already from the second half of the 5th millennium BC (Aslanis and Boyadzhiev 2004).

25 Raczky 1991.

26 Sampson 1993a, 278.

27 The acropolis of Sesklo lies at an altitude of 150 m and near water sources (Tsountas 1908, 70). The double megaron and the surrounding walls nos 17, 16, 18 are dated by Tsountas to the 2nd period of the Lithic era. He notes as well, that the deposits from the megaron contain mixed Neolithic and Bronze Age finds (Tsountas 1908, 88). Judging by the ceramics published as crusted painted (Tsountas 1908, figs 148–50), shallow bowls with rolled rims (Tsountas 1908, fig. 147), skyphoi with double handles (Tsountas 1908, fig. 161) or plastic decoration of pithoi (Tsountas 1908, figs 124 and 130), the double megaron and the surrounding walls could be dated to the 4th millennium. Their dating to the EBA seems difficult, because the finds of that period from the site indicate a reoccupation of Sesklo in an advanced phase of the Bronze Age (Tsountas 1908, figs 189–194, 198).

28 Spyropoulos 2009, 15.

29 Adrymi-Sismani 2007.

30 For Thessaly see Biesantz 1959, for Western Macedonia see Chondroyanni-Metoki 1992; Chondroyanni-Metoki 1999, 31, and for Thasos see Koukouli-Chrysanthaki 2012, 9, fig. 30.

31 Weninger and Harper 2015.

- 32 For metallurgy in the Aegean see Zachos and Douzougli 1999.
- 33 Parzinger 1993, 141, Beil. 4–5.
- 34 For Strofilas see Televantou 2008 and for metallurgy in Lavrion and Merenta see Kakavoyanni *et al.* 2008.
- 35 Fairbridge 1961.
- 36 Cribb 1991; Fratkin 1997.
- 37 For dating the last fortified phase of Dimini with megaron see Chourmouziadis 1979, 107 and Aslanis 1990, 42.
- 38 Maran 1998b; Nemejsova-Pavukova 1982.
- 39 For settlements on the Aegean islands and coasts with continued habitation from Chalcolithic to EBA see Parzinger 1993, Beil. 4–5.
- 40 Helbaek 1972; Issar 2004.
- 41 For the appearance of the Indo-Europeans and Proto-Greeks in Greece see Coleman 2000; Sakellariou 1980, 290, map I. For the Kurgan movements and the Kurgan hypothesis see Anthony 2007; Gimbutas 1956; Mallory 1991.
- 42 Fairbridge 1961.
- 43 Sakellariou 1971, 358; Sakellariou 1980, 107.

The shadowy “proto-Early Bronze Age” in the Aegean

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Introduction

Migrations from the Pontic-Caspian steppes into the Lower Danube area around the end of the 5th millennium initiated great changes in South-East Europe that by the end of the 4th millennium reached as far as Western Europe.² I argue in this paper that these changes included widespread depopulation in Greece for a few centuries towards the middle of the 4th millennium and that contact with and migrations from areas to the north by people with cultural ties to the rest of South-East Europe played a significant role in the recovery in mainland Greece and the Aegean in the second half of the 4th millennium.³

The archaeological picture (J.E. Coleman)

Most scholars regard the time span of 4000–3200/3100 BC as part of a Chalcolithic period (also known as Final Neolithic or Late Neolithic II) which lasted some 1400 years.⁴ Since, however, human activity during this long span of time does not represent a single, easily definable cultural stage, chronological divisions are desirable as a framework. Although sequences of stratified layers and deposits for the whole of the 4th millennium in Greece have

yet to be assembled, let alone closely dated by radiocarbon,⁵ well-dated cultural parallels with regions to the north provide a useful guide for such divisions.

I propose for purposes of this paper to subdivide the earlier part of the current Greek Chalcolithic/Final Neolithic period into two phases: Chalcolithic, *ca.* 4500–4000 BC, and Transitional, *ca.* 4000–3600 BC (Fig. 5.1). Since the later part of the current Chalcolithic/Final Neolithic period (*i.e.* *ca.* 3600 BC–3100 BC) has more in common culturally with the Early Bronze Age (EBA) than with earlier periods, it can usefully be considered a “proto-Bronze Age” stage that I will hereafter call EB IA. The phase beginning about 3100 BC now called EB I (or Early Helladic I on the Greek Mainland and Early Cycladic I in the Cycladic Islands) can then be designated EB IB (or EH IB and EC IB) (Fig. 5.1).

These divisions are intended only as a chronological framework for clarifying events and cultural changes in the 4th millennium. Chronological terminologies that also have cultural assumptions have caused confusion for decades⁶ and one hopes that the chronological dimension may eventually be expressed in unambiguous ways, such as in calendar years. My framework was inspired by those used by many researchers working elsewhere in South-East Europe.⁷ Metallurgy began in Greece as early as 5000 BC and my concept of the Chalcolithic period as beginning about 4500 BC is only for the sake of convenience for this paper. Also, the precise dating for the abandonment of many Chalcolithic sites at the end of the 5th millennium is dependent on currently available radiocarbon dates and new dates might change the picture.

	AEGEAN Coleman ¹	AEGEAN Gallis ²	AEGEAN Sampson ³	BALKANS Todorova ⁴	
5600BC	Late Neol	Middle Neol	Middle Neol	Middle Neol	
5300BC		Late Neol I	Late Neol Ia	Late Neol	
5000BC 4800BC		Late Neol II	Late Neol Ib	Early Chal Middle Chal	
4500BC	??	Final Neol	Late Neol IIa	Final Chal/ Transitional	
4300BC 4200BC 4000BC	Transitional				Late Neol IIb
3800BC 3700BC 3600BC			EB IA		
3300BC 3200BC 3100BC	EBA I				EBA I
			EB IB		
2700BC	EB II	EBA II	EBA II		

Figure 5.1. Chronological tables of Greece and the Balkans.

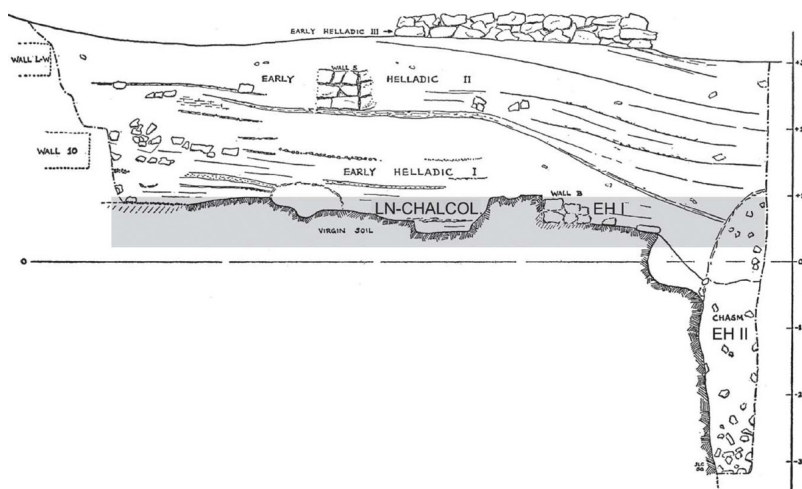


Figure 5.2. Eutresis, Stratigraphy in N scarp of trench A (from Caskey and Caskey 1960, fig. 2 with additional chronological indications). The gray band indicates the chronologically mixed layer. The scale at the right is in meters.

The Greek Chalcolithic as here conceived is by now widely documented and well-dated by many radiocarbon dates and its cultural practices were fairly uniform. Many hundreds of habitation sites are known, although burial sites are few. The mainland and the Cyclades were in close contact and interactions between the Aegean, west Anatolia and the rest of South-East Europe were also extensive. For instance, between the mid-7th millennium (when the Neolithic way of life was brought from the Near East to South-East Europe) and the mid-4th millennium, thousands of shells and finished ornaments of *Spondylus* and *Glycymeris* from the Aegean were traded up the Danube and into west Europe as far as Paris.⁸ Communities in Northern Greece have closer ties to the north in the 5th millennium than to the rest of Greece and can be considered outliers of Balkan cultures such as the Gumelnitsa-Sălcuța complex.⁹ Gold and copper metallurgy seem to have developed about the same time and in similar ways in both the Balkans and Greece starting near the end of the 6th millennium,¹⁰ which suggests that the two areas were in close contact.

The transition in Greece between the Chalcolithic period and the Transitional phase is marked by abandonment of many sites around 4000 BC followed by long breaks at those later reoccupied, such as Mandalo, Pefkakia, Theopetra, Proskynas, Ayios Demetrios and Lerna.¹¹ The few Transitional phase levels and deposits so far attested suggest some cultural continuity, although with fewer rich goods available and perhaps an increasing emphasis on defence. The current gap in radiocarbon dates between about 3800 BC and 3600 BC suggests that by then the population had reached a low level and was perhaps dispersed in a few caves and small as yet unrecognised hamlets.

Events in Greece during the Chalcolithic and Transitional phase parallel fairly closely those elsewhere in South-East Europe. The Balkan Chalcolithic (or Eneolithic) period is represented by thousands of habitation and funerary sites dating to the 5th millennium. The sites are often centred on large tells and the communities were socially complex, rich in material culture and had extensive trade networks. For instance, sites of the later 5th millennium in North-East Bulgaria and the Dobrudzha had interconnections throughout the Black Sea, as well as with North-West Anatolia and the Aegean, as evidenced especially by the finds from the large cemeteries at Varna and Durankulak.¹² Between about 4200–4000 BC, however, many hundreds of sites were abandoned in South-East Europe.¹³ Settlements of the succeeding centuries were sometimes founded in new locations and big Chalcolithic tell settlements such as Karanovo and Yunatcité in the Marica valley were unoccupied between the end of the 5th millennium and the beginning of the EBA about 3200/3100 BC. An intrusion from the Pontic steppes into South-East Europe about 4300–4100 BC by people of the Suvorovo-Danilovka culture, marked by tumulus burials and the spread of stone maces in the form of horse heads, probably contributed to the collapse, although there were likely also other causes.¹⁴

Soon after the Chalcolithic collapse in the Balkans, the Cernavoda I culture appeared in the Lower Danube area.¹⁵ It differed significantly from the earlier Chalcolithic cultures, for instance in its use of shell tempered pottery with impressed rather than painted decoration and its scarcity of figurines, and it could be considered an amalgam of steppe and European cultures. In Transylvania and eastern Hungary, the first stages of the Bodroghkeresztúr and Scheibenhengel cultures about 4000 BC marked the beginnings of new cultural activity in the western parts of South-East Europe. These cultures gave way about 3600 BC to the Baden group of cultures, which were widely distributed in the middle Danube basin and the central Balkans.

The contacts established in the 5th millennium between coastal South-East Europe and the rest of the Black Sea continued on a reduced scale during the first half of the 4th millennium before reaching an extraordinary intensity in the second half of the 4th millennium.¹⁶ The floruit of the “circum-Pontic interaction zone” of this period is associated with the Maikop culture of the north Caucasus and the Usatovo culture of the north-west grasslands steppes. Both cultures probably had extensive long-distance trading connections; the Maikop culture reached as far as the Near East and the Usatovo culture may have been in touch with the Aegean region.¹⁷

The Transitional phase on the Greek mainland as defined here is thus roughly contemporaneous with new cultural arrangements in the rest of South-East Europe which followed a similar cultural collapse.¹⁸ The still shadowy “proto-Bronze Age” (EB IA) that followed the Transitional phase is contemporary with the Baden group. For instance, the “Petromagoula-Doliana group” in Greece discussed below corresponds in time to the Cernavoda III-Boleraz group, the earliest stage of the Baden group.¹⁹ Other new settlements began later, such as Sitagroi IV, a new settlement in the North Aegean of about 3300 BC on a previously occupied mound. The new settlements have many ties to the Balkan countries to the north.

The cultural changes and economic recovery in South-East Europe in the 4th millennium, the result both of local developments and further intrusions from the Pontic-Caspian steppes, were based on revolutionary new practices that eventually spread throughout Europe. They include the use of wagons, horseback riding, woolly sheep, and new metal objects such as daggers (see Fig. 5.6).²⁰ Daggers were close-range weapons that could be used for violence or coercion and they became status symbols emphasising male strength and authority, as is evident from their representation on two figurines dating around the middle of the 4th millennium (Fig. 5.6g–h). The

introduction of arsenical bronze, which is more easily worked than plain copper, was perhaps ultimately responsible for the abandonment of the long-standing Chalcolithic mines at Ai Bunar and Rudna Glava in the Balkans. Improvements in the speed and carrying capacity of ships was perhaps a factor in the increased long-distance interactions. Although the evidence in the Aegean area for the new cultural features, except for the use of daggers, is still scanty, it is in my view plausible that traders, prospectors for new sources of metals, and movements of people of all sorts would have caused the new practices, which spread so rapidly into west Europe, to find their way also south to Greece, possibly including a form of the proto-Indo-European language that later developed into Greek.²¹

The radiocarbon evidence discussed below by Prof. Facorellis and assembled in [Table 5.1](#) supports the new chronological and cultural paradigm here proposed. Radiocarbon dates of the Chalcolithic phase in the second half of the 5th millennium, in most cases more than one per site, come from 25 sites in mainland Greece. These represent only a small part of the total number of sites occupied during the period from 4500–4000 BC on the Greek mainland; others which can be assigned with considerable confidence to the second half of the 4th millennium through comparisons with the dated sites by now number at least 300.²² Eleven sites have produced dates that might indicate occupation in the Transitional phase, *i.e.*, between *ca.* 4000–3600 BC (see [Fig. 5.8](#)). However, only four (Limenaria, Dispilio, Kouveleiki Cave B, Alepotrypa Cave) are clearly dated to that time span, since the dates in question from other sites either fall at the transition with the earlier Chalcolithic phase (Kitsos Cave, Franchthi Cave, Alepotrypa Cave) or have wide ranges and are from contexts that are likely to be earlier than the 4th millennium, to judge by other dates from similar contexts (Dikili Tash, Corycian Cave). We may add to the four sites clearly dated to the 4th millennium Palioskala in Thessaly, a site which evidently continued in use until about

3800 BC and which had concentric rings of peribolos walls like nearby Dimini.²³ Nine sites gave dates between about 3600 BC and 3200 BC in EB IA (Fig. 5.8). Only three of these, however, can clearly be associated with a particular assemblage of archaeological material, Ayios Ioannis in Thasos, Doliana and Mikrothives.²⁴

There are uncertainties about the other five sites with radiocarbon dates between 3600 BC and 3200 BC, the Cyclops Cave on Youra, the Tharrounia Cave in Euboea, the Sarakenos Cave in Boeotia, Lefkandi and Halieis. The single dates that fall within this time span at each site have poor or uncertain stratigraphic associations and may be erroneous.²⁵

Before making the case for a separate EB IA, we must consider general claims for cultural continuity in Greece during the whole of the 4th millennium. No new evidence has appeared to contradict my arguments for discontinuity as given in earlier papers. Claims of continuity still rely heavily on evidence from the Cyclops Cave, the Tharrounia Cave, the Sarakenos Cave, and the Zas Cave in Naxos.²⁶ Of course, we should not expect caves to yield sequences as reliable as those from open habitation sites. Continuous use for long periods of time is difficult to demonstrate, especially since caves lack architectural remains and were often in use only seasonally. Cave sediments often come as much from natural processes as they do from human occupation and moisture and darkness make observation difficult of whatever stratigraphy exists. Finally, because people tend to hide valuable goods in caves, later digging for “buried treasure” can lead to disturbances, especially in the upper layers with which we are concerned here.

The most significant arguments for continuity are therefore usually based on two ceramic features, “rolled rim bowls” and “heavy burnished ware”. These were defined by D. French in the 1960s and 1970s as representing a putative “North Slope phase” between the Late Neolithic and the EBA.²⁷ The “North Slope phase” was named after seventeen sherds found in 1937 in a

mixed layer on the Acropolis North Slope (Fig. 5.3a)²⁸ which French associated with “heavy slipped and burnished ware” from Eutresis (Fig. 5.3b). Analysis of the evidence from Eutresis, however, suggests that the existence of the “North Slope phase” cannot be sustained. Excavations there by H. Goldman in the 1920s were followed by a brief campaign by J. and E. Caskey in 1958.²⁹ The earliest material from Eutresis came from the lowest meter above stereo, which comprised poorly stratified deposits on virgin soil in pits and cavities (Fig. 5.2). Goldman subdivided this material into the “lowest half-meter” and the “second half-meter” and the Caskeys into groups I and II. The chronological separation of the two groups was not obvious; group I is predominantly of Neolithic date but group II is chronologically very mixed, since it includes Late Neolithic pottery probably no later than the end of the 6th millennium, an Early or Middle Neolithic stamp seal, a bowl with tabbed rim very like those from Troy I (Fig. 5.3b, II.28), Early Helladic red slipped sherds and “heavy slipped and burnished ware”.³⁰ The next highest level, group III mostly dates to EH I, although it was probably also somewhat mixed chronologically since it produced a “moderate number of fragments [of heavy slipped and burnished ware] ... perhaps all earlier than group III”.³¹ There are no radiocarbon dates from groups I and II. Group III and group IV each produced single radiocarbon dates of about 3200–3000 BC (Table 5.1). Since group II lacks the usual pottery of the Chalcolithic, such as pattern burnished and incised wares, which are found in abundance elsewhere in Boeotia, for instance at the Sarakenos Cave,³² it is likely that, rather than being continuously inhabited, Eutresis was deserted between the Late Neolithic period and EB IB.

“Rolled rim bowls”, the hallmark of the North Slope sherds (Fig. 5.3a, 1, 2, 5), are not clearly present in the published material from Eutresis group II, despite claims to the contrary.³³ The main similarities between the sherds from the North Slope and those of Eutresis group II is the presence of bowls with

horizontal tubular lug-handles among the “heavy slipped and burnished ware”. Such lug handles occurred at Eutresis in both groups II and III³⁴ and they can hardly be considered to have a narrow chronological range.

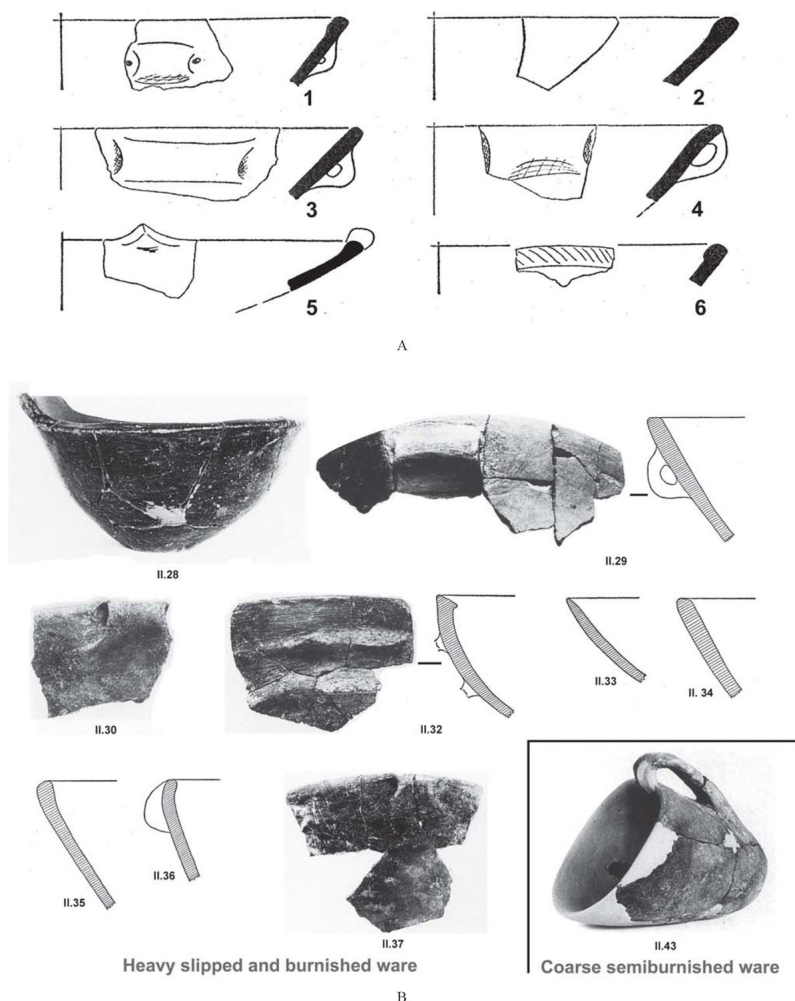


Figure 5.3. A. Pottery from the Acropolis N. Slope (after French 1961; French 1964b). B. Pottery from the Caskeys' Eutresis Group II (from Caskey and Caskey 1960, fig. 4 and pls 45–7).

The term “rolled rim bowl” is not well defined. Inner

thickening of rims occurs sporadically in Greece and Anatolia from Late Neolithic until well into the EBA and it cannot by itself be considered a useful chronological marker. Vessels with rolled rims of probable Chalcolithic date vary considerably in profile, the degree of rim thickening and the existence and shapes of lug-handles.³⁵ Shallow bowls with truncated-conical profiles like those from the North Slope and deeper bowls with rounded profile are widespread during the later years of the 4th millennium in Greece and in North-West Anatolia and they often have horizontal tunnel lug-handles. Well dated examples come from Kumtepe 1B in the Troad and at Phylakopi and Markiani in the Cyclades they mark the beginning of the Early Cycladic period.³⁶ Since the Acropolis North Slope sherds are similar to those from Kumtepe 1B and Markiani, they can probably be dated towards the end of the 4th or the beginning of the 3rd millennium. One has a thickened rim decorated with incisions (Fig. 5.3a, 6) and another has a pointed projection at the rim (Fig. 5.3a, 5), both types which occur toward the end of the Kumtepe 1B phase and are common in Troy I.³⁷ Such rolled rim bowls have now been found in West Anatolia at Bakla dating to the middle of the 4th millennium³⁸ and the Greek versions are probably the result of contacts and perhaps even of immigration into the Cyclades from Anatolia.

The pottery that the Caskeys called “heavy slipped and burnished ware” (Fig. 5.3b) is also a mainstay for claims of cultural continuity in the 4th millennium. Generally similar coarse or semi-coarse burnished pottery, now usually called simply “heavy burnished”³⁹ occurs at several other sites besides Athens and Eutresis. The most fully published examples, those from the Franchthi Cave and from Lerna, are from chronologically uncertain contexts. At Franchthi some of the pottery designated “heavy burnished” is probably to be associated with the latest period of stratified use, FCP 5.2, which ended about 4000 BC but, since almost all the “heavy burnished” sherds come from higher disturbed levels, most may be of later date.⁴⁰ At Lerna the “heavy

burnished” pottery occurs in Final Neolithic deposits and the “mixed fill”.⁴¹ Although Vitelli saw fairly close correspondence between the “heavy burnished” pottery of Franchthi and that of Lerna, rolled rims such as occur on bowls at Lerna⁴² are absent at Franchthi⁴³ and painted decoration, which occurs at Franchthi, is not found on the vessels assigned to the “heavy burnished” category at Lerna. Bowls assigned to the “heavy burnished” category at Lerna with offset rims and vertical or oblique grooving⁴⁴ also do not occur at Franchthi. Such grooved or channelled vessels have a long history in Greece and further to the north starting in the 5th millennium and becoming very common at least until the middle of the 4th millennium,⁴⁵ so that their occurrence at Lerna provides no indication for the dating of “heavy burnished” ware. The fourteen “heavy slipped and burnished” sherds published from Eutresis have little in common with the “heavy burnished” pottery from Franchthi.⁴⁶ In sum, therefore, it is doubtful that the pottery designated as “heavy burnished” is similar enough from site to site to be regarded as a widespread ware with a single chronological span. Although some unstratified sherds from Franchthi and Lerna perhaps date between ca. 3900 BC and 3100 BC, we cannot say more without further evidence.

Other finds from the North and West Slope of the Acropolis of Athens might indicate at least sporadic settlement between the Chalcolithic and the beginning of the EB IB phase. Eighteen wells clustered on the North Slope produced material, which, although perhaps mostly dating to the Chalcolithic, included material from the 4th millennium.⁴⁷ The excavations produced no evidence for the chronological ordering of the finds since the wells lacked significant stratigraphy and all contained similar deposits. The pottery included fourteen sherds with painted decoration likely dating to the 5th millennium; fragments from “scoop” vessels, two terracotta figurines and a few pattern burnished sherds that have parallels at Kephala; a sherd with a plastic disk beneath the handle

like those from the *Scheibenhelkel* group in Hungary and West Romania, which dates to the earlier 4th millennium;⁴⁸ two bowls with two small vertical handles at the rim like those of the central Balkans of the mid-4th millennium but also with parallels at Tsepi around the beginning of the EBA (i.e. EB IB);⁴⁹ and six vertically channelled grey burnished bowls or cups like those from Sitagroi III and IV.⁵⁰ Only one fragment of a bowl with a rolled rim was found⁵¹ and it resembles those from the North Slope deposits already discussed.

Sixty or more distinctive red burnished jars and bowls also from the North Slope wells are difficult to date. The jars have biconical or globular profiles with collar rims, ring bases or flat bottoms, and pairs of lugs or handles on the shoulder or belly. Most lugs are wide and doubly pierced vertically to match similarly aligned pairs of pierced holes in the ring bases, and the ends of some lugs extended downwards in long plastic strips. Although such plastic appendages to lugs are found at Kephala, they occur there on large jars and have three plastic vertical appendages rather than two, the central one shorter than those at the ends, and the lugs are aligned with vertical handles near the belly of the vessels.⁵² The red-burnished bowls mostly have a rounded profile and in a few cases vertical plastic strips on the outside. Some jars and bowls were decorated with striped decoration, perhaps in matte white paint as suggested by Immerwahr but many probably by pattern burnishing. The patterns comprise groups of parallel lines like those from sites of the second half of the 5th millennium. Given the apparent homogeneity of the red burnished pottery, it is unlikely that it continued in use with little change for many hundreds of years.

The lack of use deposits and the homogeneity of the finds suggest that the wells were all filled about the same time after a short time of use. Since the finds from the filling apparently span a long time, they probably came from nearby habitation debris of mixed date. However, the long time span does not necessarily

imply continuous human activity, since the debris might have come from separate episodes of habitation.

A well on the West Slope of the acropolis less than 20 m distant from the nearest of the North Slope wells, although generally similar in form and contents to the North Slope wells, was probably filled in somewhat later than them. The finds, in addition to red polished jars like those from the North Slope wells, included undecorated conical-necked jars like those from Tsepi and the Pelos phase of the Early Cycladic period and two storage jars.⁵³ One fragmentary conical necked jar has crusted decoration.⁵⁴ The storage jars have general parallels in the phase in the Balkans.⁵⁵

The finds around the Acropolis at Athens continue to pose difficulties of interpretation, given the absence of stratified deposits. Perhaps deposits will eventually turn up that demonstrate some degree of cultural continuity throughout the 4th millennium. In the meantime, the best we can conclude at present is that there was probably habitation activity both in the Chalcolithic phase as here defined and the EB IA phase, perhaps continuing into EB IB.

We turn now to the shadowy EB IA group in central Greece that I have termed the “Petromagoula-Doliana group.”⁵⁶ Mikrothives and Doliana, the best published of the four excavated sites, had simple architecture and were short lived. Four radiocarbon dates from Doliana suggest a dating between 3600 BC and 3200 BC (Table 5.1) and Mikrothives has produced dates between 3670–3380 BC.⁵⁷ “Bratislava bowls”, a distinctive type with elaborate incised decoration on the bottom (Fig. 5.4a–b), occur at all four excavated Greek sites. Similar bowls occur within a broad band of sites stretching from central and Northern Greece and Southern Albania along the Strymon, Vardar-Axios and Morava corridors as far as Slovakia.⁵⁸ Since the Greek examples differ somewhat from those further north, I have suggested that they be called “Petromagoula-Doliana” bowls.⁵⁹

Mikrothives has provided a remarkably full picture of a small settlement of short duration, perhaps occupied by immigrants who soon moved on. Three copper daggers (e.g. [Fig 5.6a–b](#)) are among the earliest in Greece and have close parallels elsewhere in Europe.⁶⁰ They indicate that Greece participated fully in the new order that came into being in South-East Europe during the 4th millennium that emphasised male strength and authority, as exemplified by figurines with daggers of the Boleraz-Cernavoda III group (e.g. [Fig. 5.6g–h](#)). The pottery includes conical vessels with pointed bottoms,⁶¹ similar to the marble “rhyta” from sites like Kephala, Tigani, Kumtepe and Kulaksızlar, but lacking lugs or handles.⁶²

The finds from Doliana, which has two phases, each of short duration, are generally similar to those of Mikrothives but the large storage vessels are more highly decorated with plastic strips with indentations (“rope decoration”) and the small vessels include cups with flat handles rising slightly above the rim, a type also found in EH IB at Eutresis and Lithares. Perhaps, therefore, Doliana was inhabited a bit later than Mikrothives. Very little has been published from Petromagoula but the finds include bowls with rolled rims.⁶³ Specific similarities of the sites of the “Petromagoula-Doliana group” to the Cernavoda III-Boleras stage in the Balkans suggest that their inhabitants may have come to Greece from the central Balkans.⁶⁴

Continuity between the EB IA and EB IB phases is suggested by similarities in finds of the Petromagoula-Doliana group to those from the Early Helladic cemetery at Tsepi in Marathon. For instance, a group of shallow bowls at Tsepi and Markopoulo with rounded bottoms are somewhat similar both in shape and incised decoration to the Petromagoula-Doliana examples ([Fig. 5.4c–d](#)). Like the Petromagoula-Doliana bowls, the bowls of Tsepi type have spirals and sunbursts, often in a quadripartite syntax and I have suggested they were later versions of those of Petromagoula-Doliana and used for similar rituals.⁶⁵ Some of the earliest “frying

pans” also occur in the Tsepi cemetery (Fig. 5.4e) and the type may in turn have been inspired by the bowls of the Tsepi type. A sequence of such bowls and pans from the mid-4th millennium to near the middle of the 3rd millennium is suggested not only by the shallow forms with elaborate decoration on the bottom but also from the nature of the decoration. For instance, similar motifs (spirals, sunbursts, *etc.*) occur in similar circular and quadripartite overall designs (Fig. 5.4). Since new finds are still being made at Tsepi and at other Attic sites of the same date, however, we must wait to see what the future will bring.

Sitagroi IV probably represents the latest stage of the EB IA in Northern Greece. The radiocarbon dates suggest that the site was settled about 3300 BC after a hiatus of many centuries. The finds have close connections with the north during an advanced stage of the Baden cultural group.⁶⁶ The channelled cups/bowls from Sitagroi IV have minimal value as chronological markers, as shown above.

Another strand of cultural change is represented further east in the North Aegean coastal area by settlements on Thasos. Radiocarbon dates suggest that such change may have begun as early as the middle of the 4th millennium as attested by a small, short-lived site with buildings of perishable material at Ayios Ioannis. The site is related by the excavator to a wide range of sites in the Balkans, Northern and Central Greece and the Cyclades.⁶⁷ An oval hearth with a raised structure near one end is similar to hearths at Mikrothives.⁶⁸ Balkan influences on Thasos are also evident at two 3rd millennium sites, Limenaria, where a group of menhir-like standing stones and an oval stone with 30 small cavities around the edge and one in the middle were found in what was probably a ritual area, and Skala Sotiros, which produced stone sculpture generally resembling menhir types of South-East Europe and the Pontic-Caspian steppes.⁶⁹ Contacts via the Strymon and Nestos passes through the Rhodope Mountains probably played a significant role in the new EB IA and EB IB

settlements in the North-East Aegean.

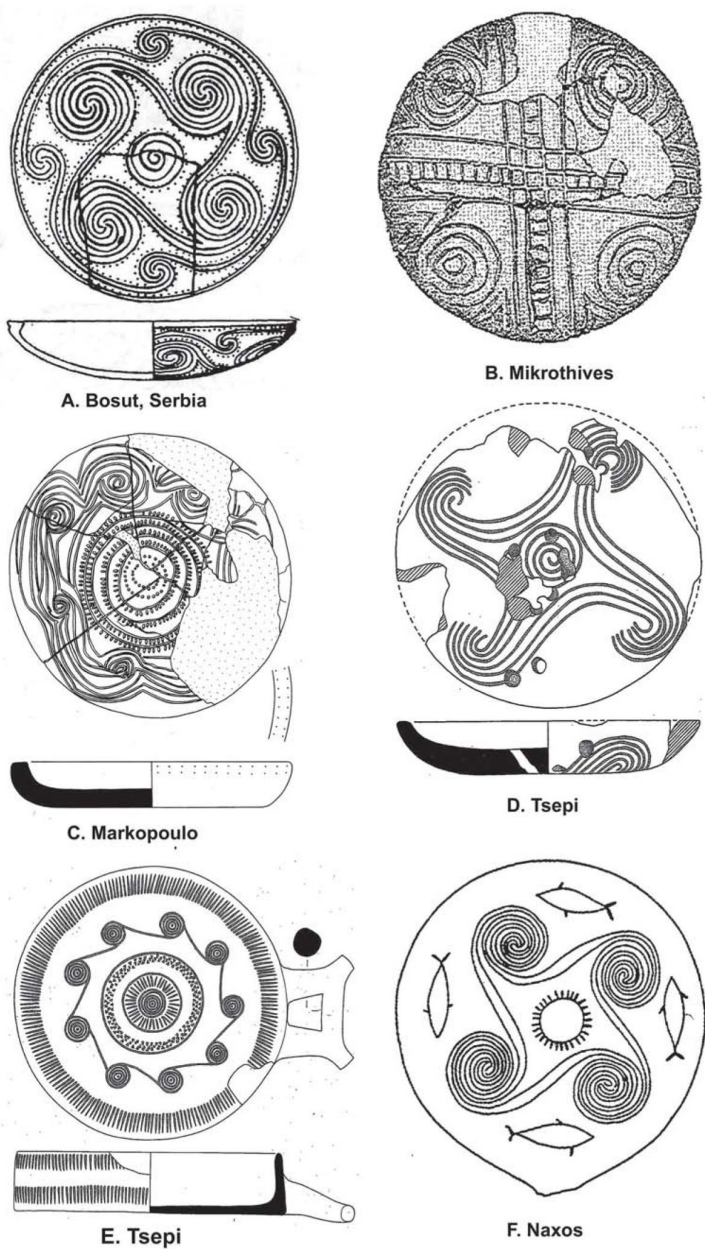


Figure 5.4. Bowls with incised decoration on the bottom: a, b. Bratislava-Petromagoula-Doliana bowls; c, d. Tsepi bowls; e, f. frying

pans.

EBA-EH settlement was probably slower to take hold in the Peloponnese than in central Greece and there is almost no evidence there for a “proto-Early Bronze Age” stage. As already discussed, Lerna has no certain occupation from 3800-2800 B.C. and the Franchthi Cave was essentially abandoned after about 3800 B.C. Similar gaps are evident at the Alepotrypa cave at Diros and the few other sites in the Peloponnese with ¹⁴C dates (Table 5.1). Sites with the earliest stage of the Early Helladic culture are also rare and mostly documented in the Argolid and Corinthia.⁷⁰ Finds at Aigeira in the Corinthian gulf that might represent an intermediate stage between the Chalcolithic period and the EBA are so far without significant stratigraphic control.⁷¹ Stratified evidence for a possible “proto-Early Bronze Age” stage has appeared only at Tsoungiza, where small deposits beneath clearly defined Early Helladic levels were dated by the excavator to the Final Neolithic but with the caveat that they may belong to the earliest EH I. Small scoops from the deposits have such close parallels in the Kostalac phase in Serbia, which dates near the end of the 4th millennium, that coincidence is unlikely.⁷² Perhaps the proto-Early Bronze Age settlements of central Greece did not spread to the south beyond the isthmus of Corinth. The few known EH I settlements of the Peloponnese are also somewhat different in character than those of Central Greece and may belong to a different tradition.

The Alepotrypa Cave may have been used for much of the first half of the 4th millennium. Papathanassopoulos regards the inhabitants of Diros Bay as belonging to a marine culture with widespread contacts⁷³ and this is in keeping with the rich and varied finds from the cave. Radiocarbon dates (Table 5.1) show that the cave was in use during both the Chalcolithic and Transitional phases. Some of the finds may also belong to an EB IA phase as defined here, e.g. four daggers, some of the pottery and two marble bowls with a horizontal groove at the rim.⁷⁴

Settlements in the Cycladic Islands probably increased and decreased in the 5th and 4th millennia BC, in part according to the maritime interests of the nearest mainland areas.⁷⁵ The inhabitants focused on fishing and trading in obsidian, metals, marble and shells. Melian obsidian was reaching west Anatolia starting at least as early as the 6th millennium⁷⁶ and the sources on Melos may have been exploited by traders from both sides of the Aegean. Radiocarbon dates from Ftelia and Saliagos (Table 5.1) suggest that their occupations overlapped in time during the first half of the 5th millennium, despite the differences in their material cultures. Ftelia shows more affinities than Saliagos with Kephala on Keos and other Chalcolithic sites on the mainland and since copper artefacts have been found there,⁷⁷ the settlement at Ftelia might even be considered to mark the beginning of the Chalcolithic period in Greece with possible parallels in South-East Europe.⁷⁸ In the South Euboean Gulf, where major north–south and east–west sea routes cross, Chalcolithic sites are grouped around the tip of Euboea, the islands of Keos and Makronesos and South Attica, with its major sources of metals at Lavrion.⁷⁹

My argument, first made in 1977, that Kephala on Keos belongs to the 5th millennium⁸⁰ still seems to me correct, since a single ¹⁴C sample from a shallow rock shelter which gave a later date (Table I, P-1280, *ca.* 3800 BC) can probably be discounted as contaminated. Many finds from Kephala resemble those from other sites with later 5th millennium radiocarbon dates such as Pefkakia, Proskynas, Tharrounia, the Kitsos Cave, the Franchthi Cave and Ayios Demetrios (Table 5.1).⁸¹ Conical marble “rhyta” from Kephala⁸² now have parallels probably dating to the mid-5th millennium at Kulaksızlar in west Anatolia and it seems likely that such marble vessels were imported from there to the Cyclades.⁸³ The Kephala bowls with incised decoration on raised bands at the rim are remarkably similar to those from Ftelia in Mykonos, with radiocarbon dates in the first half of the 5th millennium (Table 5.1). Although the Kephala burials have parallels with those of the

Early Cycladic period and with the Early Helladic sites of Tsepi and Ayios Kosmas in Attica, the movable finds from Kephala lack close similarities with those of EBA Attica and there are now also more parallels for the burials in the later 5th millennium.⁸⁴ Nevertheless, the possibility that Kephala dates early in the 4th millennium cannot be entirely ruled out. Graves in South-East Europe and around the shores of the Black Sea dating in the second half of the 5th millennium and throughout the 4th millennium are also possible parallels for the Kephala cemetery.⁸⁵ More radiocarbon dates from the Cyclades and Attica are therefore needed to put Kephala firmly within its cultural and chronological context.

The site of Strofilas, high on a hill in Andros and still under excavation, is an exciting addition to our knowledge of the prehistoric Cyclades. Scientific dates so far published, although imprecise, indicate that it was occupied in the middle or second half of the 4th millennium⁸⁶ and the finds indicate that the main occupation precedes the first phase of Early Cycladic. The main occupation of Strofilas can probably therefore be assigned to a Cycladic proto-Bronze Age when details are more fully published. Although Strofilas shares some features with Kephala, such as pattern burnishing and incised decoration, most of the artefacts so far published seem to me closer to those of the Early Cycladic period.⁸⁷ The many rock-art representations of ships (e.g. [Fig. 5.5a–d](#))⁸⁸ are the earliest evidence for what was probably a new type of sea-going vessels.⁸⁹ The larger ships, long and narrow, with raised bows and sterns, are of a type not known from models of earlier times.⁹⁰ Such “longboats” would have had a greater range and carrying capacity than their predecessors and they stand at the head of a tradition that laid the foundations for the great expansion of interactions throughout the Aegean and adjacent regions in the Bronze Age. The Strofilas ships are similar to those recently published from Astypalaia and dated to an early stage of the Early Cycladic period ([Fig. 5.5e–g](#)),⁹¹ and the Astypalaia ships

in turn are clearly ancestral to those represented on Syros frying pans.⁹² The high prows of some of the ships at Strofilas and Astypalaia have “figureheads” including two from Astypalaia representing fish (Fig. 5.5f–g) like those on the later Cycladic frying pans. Strofilas and Astypalaia ships are often depicted in groups, either strung out along more or less horizontal lines or beam-to-beam one above the other, sometimes with no space between them. These groupings suggest that the ships travelled and moored in fleets so that they often remained in contact and could protect one another, an appropriate arrangement for long-distance travel and raiding parties.

The Strofilas and Astypalaia ships bear such a close relationship to the earliest representations of ships in Egypt dating to the Late Predynastic and Early Dynastic periods, *i.e.* roughly contemporaneous with the settlement at Strofilas, that coincidence can be ruled out. Both the types and methods of construction of such ships are likely to have originated in Egypt, since a plausible development is evident there from reed boats used locally on the Nile to wooden boats as Egypt expanded the range of its influence within the Eastern Mediterranean.⁹³ The plausibility of such a connection with Egypt is further supported by the evidence for Cretan interrelations with Egypt and Libya starting in the later 4th millennium and in particular the resemblance between ships on Early Minoan seals with contemporary Egyptian ships.⁹⁴

Such Aegean ships and fleets of the later 4th millennium would, in my view, have been capable of travel not only throughout the Aegean but also between it and the western shores of the Black Sea,⁹⁵ and perhaps as far as the Eastern Mediterranean. As already mentioned, large quantities of Mediterranean shells (*Spondylus*, *Glycemeris* and *Dentalium*) were being exported to the coastal areas of the North-West Black Sea already in the 5th millennium and the trading routes that brought them there were hardly likely to have been forgotten in the 4th millennium. Trading between the Aegean and the Black Sea might

at that time have been by ship for the whole distance, if the Bosphoros was open. Otherwise it could have been carried out partly by sea and partly by an overland leg, perhaps just west of the Bosphoros or via Eastern Thrace and the coastal Strandzha region near the border between Turkish Thrace and Bulgaria. The Strandzha was rich in metals and had strong connections by sea with the north-west corner of the Black Sea starting in the 5th millennium. Ivanova writes that “the Strandzha ore deposits must have acted as a focus of attraction for both the Aegean/Marmara and Black Sea communities and probably one of the major hubs in the exchange of stone and shell ornaments.”⁹⁶ Another possible Aegean trading connection is with the Usatovo culture, which dominated the north-west corner of the Black Sea from about 3300–3000 BC. Anthony has argued that Usatovo had wide contacts reaching as far as the Near East.⁹⁷ A dagger from Strofilas is similar to those of the Usatovo culture (Fig. 5.6c–d) and a Strofilas pithos with horizontal rows of handles resembles one from the nearby Cucuteni culture dating from *ca.* 3900–3700 BC.⁹⁸

Strofilas was located on all sea routes to the southern parts of mainland Greece and could dominate the important Kaireas Strait between Andros and Euboea, which also gives entry to the Euboean Gulf. Astypalaia in turn was on the routes to the Dodecanese, Cyprus and the Near East from many parts of the Aegean. Four daggers on a rock face at Astypalaia are represented on a passage leading into the fortified area (Fig. 5.6e–f).⁹⁹ Their public position and large scale (up to 0.30 m) suggest that threats of force were a factor in Early Cycladic culture and raises the possibility that some of the paddlers of these early ships may have participated under compulsion. Perhaps piracy was one of the inhabitants’ marine activities, as the heavy fortifications at both sites might suggest.

Contacts with South-East Europe and especially the north shore of the Black Sea are further suggested by other aspects of the rock

art of Strofilas and Astypalaia, which is complex, well-developed and without precedents in the Cyclades. The subject matter and style have significant similarities with those of menhirs and carved slabs of the Balkans and the Pontic-Caspian steppes toward the end of the 4th millennium and during the first half of the 3rd millennium. Most striking among the motifs common to both areas are “footprints” (Fig. 5.6j) “cup-marks”, “topographic representations”, and animals.¹⁰⁰ Although spiral motifs such as at Strofilas and Astypalaia, the ring idols at Strofilas and the daggers at Astypalaia are rare or absent in the rock art of the Pontic-Caspian area and South-East Europe, a few examples come from elsewhere in the Aegean and Bulgaria.¹⁰¹ For instance, a menhir from Ezerovo wears a possible ring idol as a pendant around his neck (Fig. 5.6i) and another from Kalitche has a dagger at his waist (Fig. 5.6j). Daggers also occur on figurines of the Cernavoda III cultural group of the mid-4th millennium (Fig. 5.6g–h) and a menhir from Skala Sotiros has a dagger in his right hand.¹⁰²

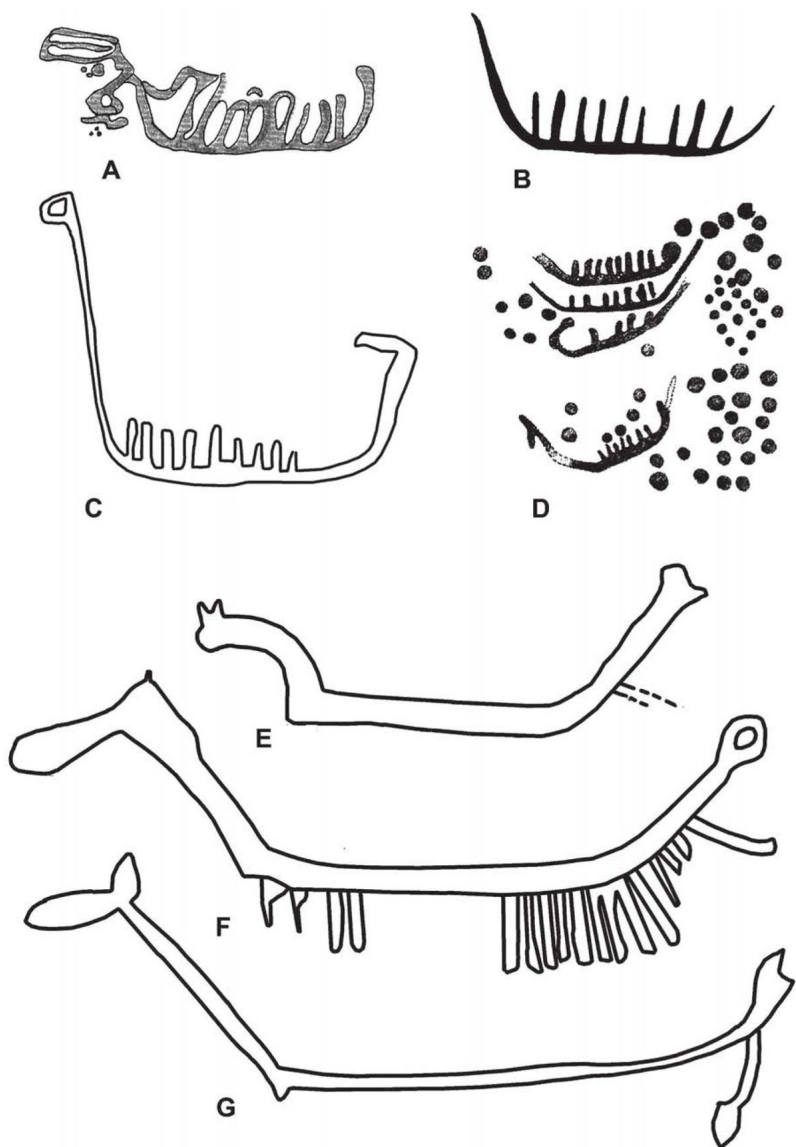


Figure 5.5. Rock art images of ships from Strofilas and Astypalaia: a–d. Strofilas (after Televantou 2009; Televantou 2010; Televantou 2011); e–g. Astypalaia (after Vlachopoulos 2012).

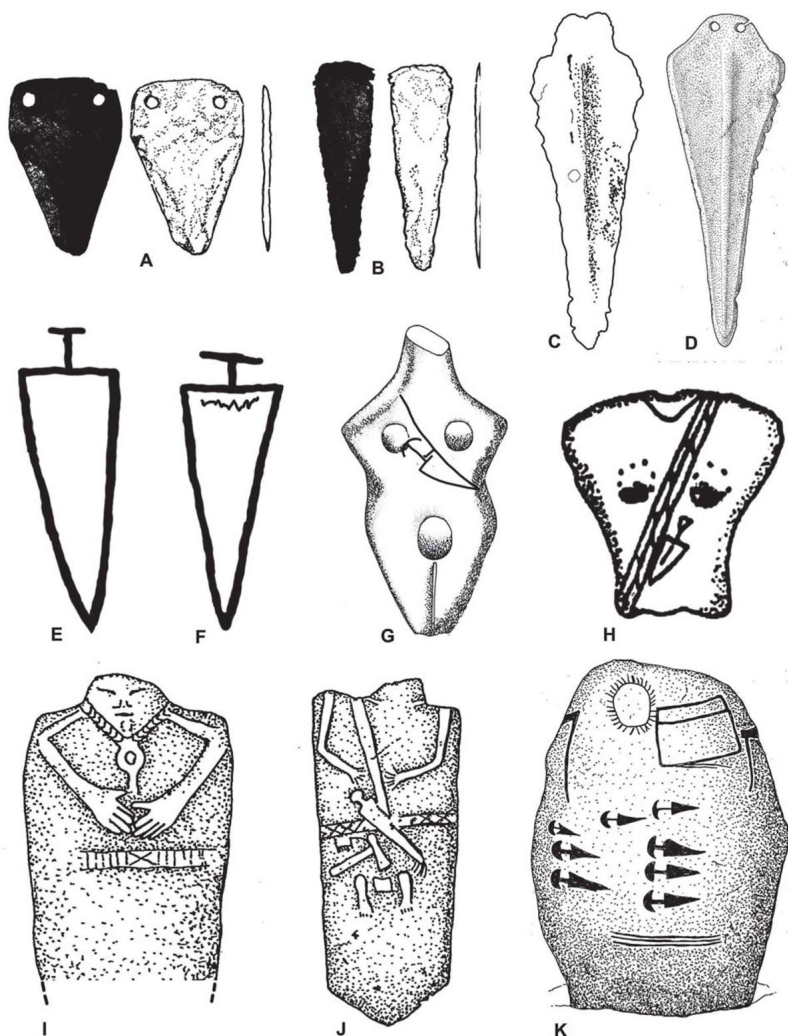


Figure 5.6. Daggers and Figurines with daggers: a, b. Mikrothives (after Zachos 2010, Fig. 6.7, β, δ); c. Strofilas (after Televantou 2008); d. Usatovo (after Vaysov 1993); e, f. Astypalaia (after Vlachopoulos 2012); g. Cernavoda III (Roman 2001, Taf. 1); h. Satu Nou (Roman 2001, Abb. 16.12); i. Menhir from Ezerovo in Bulgaria (after Telegin and Mallory 1994, Fig. 13.2); j. Menhir from Kalitche in Bulgaria (after Telegin and Mallory 1994, Fig. 24.2); k. Menhir from Bagnola in Italy (after Telegin and Mallory 1994, fig. 22).

Elsewhere in Europe, on the other hand, spirals and daggers (e.g. [Fig. 5.6k](#)) are common in menhirs and rock art, particularly in the mountainous Valcamonica and Valltelina region of north Italy beginning near the start of the 3rd millennium.¹⁰³ Perhaps therefore most of the eastern menhirs date to a time before the dagger became widespread as a personal weapon. If the eastern menhirs are earlier on the whole than those from the west, their use may have spread from east to west during the Yamna steppe expansion, beginning a few centuries before the end of the 4th millennium. No rock art images of daggers have yet been mentioned at Strofilas and those at Astypalaia might then date on a relative scale about the time that the western menhirs and stelae begin to appear.

The question of cultural continuity in the Cyclades throughout the 4th millennium depends in my view largely on how one's concept of culture is conceived. That some types of objects continue to be made and used is likely but individual settlements in the islands earlier than the Bronze Age were short-lived and subject to waves of influence from all sides of the Aegean and the Black Sea. Strict continuity such as was claimed for the Zas Cave in Naxos is now uncertain, since recently published ¹⁴C dates ([Table 5.1](#)) suggest a gap there from about 4000 BC to at least 3200 BC.¹⁰⁴ A conical-necked jar from Zas cave has fairly close parallels in shape in the Balkans.¹⁰⁵ Pots published without indication of stratigraphic position suggest that the cave may have been used in the mid-4th millennium during a Cycladic "proto-Bronze Age",¹⁰⁶ but without full publication one cannot be sure.

I have argued here for extensive contacts between the Aegean and a wide area, including South-East Europe, the Black Sea, Anatolia and perhaps Egypt and Libya. These suggest that local cultures influenced one another in more dynamic ways than is usually acknowledged. In Neolithic and Chalcolithic times, the peoples of the Aegean were part of a broad cultural continuum that extended throughout South-East Europe in which

communities exploited similar natural resources and exchanged products with one another by land and sea. In the 4th millennium, great disturbances and changes to this cultural continuum ushered in a widespread new social and economic order. Scholars largely agree that the new order was related to interactions with and movement of peoples from the Pontic-Caspian steppes and that those interactions eventually brought about the spread of Indo-European languages into Europe. If the introduction of a new Indo-European language that was to become Greek also began in the 4th millennium, as I have argued elsewhere,¹⁰⁷ many of the inhabitants of the Aegean would have had come to have linguistic and well as cultural ties with the rest of Europe. Such ties would have extended to the Pontic-Caspian steppes, where the new Indo-European languages originated, including the northern coast of the Black Sea, and also to parts of Anatolia, where linguists argue that languages belonging to the Anatolian branch of Indo-European had taken hold even before the entry of proto-Indo-European languages into Europe. Indo-European languages came with attractive cultural arrangements that helped to consolidate society such as elaborate funerary rituals involving feasting and the relationship of host and guest.¹⁰⁸ In any case, regardless of the language question, the inhabitants of a sparsely populated Greece in the mid-4th millennium would probably have welcomed the many physical improvements to their way of life that came to them through increased contact with and immigration from the north, including easier production of food, clothing and tools, easier ways of travel and the greater opportunities for individual enterprise that these improvements provided.

The radiocarbon dates (Y. Facorellis)

Table 5.1

Table 5.1 gives a summary of 256 published ¹⁴C ages from 43 archaeological sites in Greece that fall within the time span of *ca.* 5000–2000 cal BC within two standard deviations. The results are

sorted by the geographic coordinates of each site from north to south (Fig. 5.7) and by age. The samples from the eight Cycladic sites (Kephala, Keos; Ayios Nikolaos, Keos; Ftelia, Mykonos; Zas Cave, Naxos; Saliagos; Dhaskaleio Kavos, Keros; Markiani, Amorgos; and Akrotiri, Santorini) are placed at the end of the table since it seems best to consider them separately. In this table one can see the laboratory code, site name, geographic coordinates, description, conventional and calibrated dates expressed in calendar years BC within 1 (1σ) and 2 standard deviations (2σ), probability 68.3% and 95.4%, respectively, and finally, the corresponding reference of each sample. High standard deviations of the conventional ^{14}C ages are mostly due to undersized amount of sample available, although the accuracy of the method tends to increase through the years following the improvement in sample preparation procedures and the counting equipment. The conventional ^{14}C ages of the atmospheric samples (charcoal, bones *etc.*) and of the marine samples were calibrated with the IntCal13 and the Marine13 calibration curves,¹⁰⁹ respectively, using the OxCal v.4.2.3 software.¹¹⁰ When the conventional ^{14}C age inaccuracy of a sample is $\geq \pm 50$ years the corresponding calibrated dates are rounded to the nearest decade.

Figure 5.8 shows the age spans in calendar years BC (within 1σ) of the aforementioned sites in the order in which they appear in Table 5.1 based solely on the radiocarbon dated samples. Time gaps in the sequence of the radiocarbon dates of a site do not necessarily reflect an abandonment of the particular site during the corresponding periods.

Table 5.1. List of radiocarbon determinations.

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
HD-20461	PROMACHON- TOPOLNICA, SERRES (41° 24' N, 23° 19' E)	3, Square 1A', Depth 80,05 m, Phase III (IV)	5447 ± 42	4345–4261 (68.3%) 4364–4181 (95.4%)	Koukouli- Chrysanthaki <i>et al.</i> 2005, 2007
HD-20462	<i>Idem</i>	4, Square 1A', Depth 80,01 m, Phase III (IV)	5530 ± 48	4446–4339 (68.3%) 4462–4267 (95.4%)	<i>Idem</i>
DEM-1185	<i>Idem</i>	9, Square 1ΣT', Layer 10, Depth 79,31 m	5895 ± 33	4793–4723 (68.3%) 4841–4705 (95.4%)	<i>Idem</i>
DEM-1173	<i>Idem</i>	10, Square 1ΣT', Layer 10, Depth 79,30 m	5996 ± 25	4932–4844 (68.3%) 4951–4799 (95.4%)	<i>Idem</i>
DEM-1254	<i>Idem</i>	12, Square 1ΣT', Layer 11, Depth 78,99 m	6038 ± 40	4997–4851 (68.3%) 5045–4835 (95.4%)	<i>Idem</i>
DEM-1250	<i>Idem</i>	8, Square 1ΣT', Layer 8, Depth 79,65 m	6068 ± 40	5042–4913 (68.3%) 5201–4843 (95.4%)	<i>Idem</i>
BM-653	SITAGROI, DRAMA (41° 05' N, 24° 01' E)	Phase Vb, Level QO 8	3790 ± 78	2350–2050 (68.3%) 2470–2030 (95.4%)	Burleigh <i>et al.</i> 1977
BM-652	<i>Idem</i>	Phase Va, Level PO 162	3803 ± 59	2340–2140 (68.3%) 2460–2050 (95.4%)	<i>Idem</i>
Bln-780	<i>Idem</i>	Phase Vb, Level PO 9	3870 ± 100	2470–2200 (68.3%) 2620–2030 (95.4%)	Renfrew <i>et al.</i> 1986
Bln-876	<i>Idem</i>	Phase Vb, Level PO 23	3965 ± 100	2620–2300 (68.3%) 2860–2150 (95.4%)	<i>Idem</i>
LJ-2714	<i>Idem</i>	Phase Vb, Level PN/C 81	3971 ± 40	2570–2460 (68.3%) 2580–2350 (95.4%)	<i>Idem</i>
LJ-2715	<i>Idem</i>	Phase Vb, Level PN/C 81	4005 ± 40	2569–2476 (68.3%) 2832–2458 (95.4%)	<i>Idem</i>
Bln-781	<i>Idem</i>	Phase Vb, Level QO 8	4085 ± 150	2870–2480 (68.3%) 3020–2200 (95.4%)	<i>Idem</i>
Bln-877	<i>Idem</i>	Phase Va, Level PO 158	4170 ± 100	2890–2630 (68.3%) 3010–2470 (95.4%)	<i>Idem</i>
Bln-782	<i>Idem</i>	Phase Va, Level ZA 16	4310 ± 100	3260–2710 (68.3%) 3340–2630 (95.4%)	<i>Idem</i>
BM-651	<i>Idem</i>	Phase IV, Level ZB 108	4332 ± 79	3090–2880 (68.3%) 3340–2700 (95.4%)	Burleigh <i>et al.</i> 1977
BM-650a	<i>Idem</i>	Phase IV, Level ZB 112	4363 ± 56	3080–2910 (68.3%) 3320–2890 (95.4%)	<i>Idem</i>
Bln-1102	<i>Idem</i>	Phase IV, Level ZB 112	4380 ± 80	3260–2900 (68.3%) 3340–2890 (95.4%)	Renfrew <i>et al.</i> 1986
Bln-773	SITAGROI, DRAMA (41° 05' N, 24° 01' E)	Phase IV, Level ZA 29	4390 ± 100	3320–2900 (68.3%) 3370–2780 (95.4%)	Renfrew <i>et al.</i> 1986
Bln-878	<i>Idem</i>	Phase IV, Level ZA 31	4395 ± 100	3320–2910 (68.3%) 3370–2870 (95.4%)	<i>Idem</i>
Bln-880	<i>Idem</i>	Phase IV, Level ZB 112	4510 ± 100	3360–3030 (68.3%) 3510–2920 (95.4%)	<i>Idem</i>
Bln-879	<i>Idem</i>	Phase IV, Level ZA 31	4550 ± 100	3500–3090 (68.3%) 3620–2930 (95.4%)	<i>Idem</i>
Bln-774	<i>Idem</i>	Phase III, Level ZA 41a	5100 ± 120	4040–3720 (68.3%) 4230–3650 (95.4%)	<i>Idem</i>

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
BM-650b	<i>Idem</i>	Phase III, Level ML 118	5367 ± 85	4330–4070 (68.3%) 4350–3990 (95.4%)	Burleigh <i>et al.</i> 1977
Bln-883	<i>Idem</i>	Phase III, Level MMb 69	5545 ± 100	4500–4270 (68.3%) 4680–4080 (95.4%)	Renfrew <i>et al.</i> 1986
Bln-881	<i>Idem</i>	Phase III, Level ZB 125	5555 ± 100	4500–4270 (68.3%) 4680–4180 (95.4%)	<i>Idem</i>
Bln-776	<i>Idem</i>	Phase II, Level ZA 52	5720 ± 100	4690–4460 (68.3%) 4780–4360 (95.4%)	<i>Idem</i>
Bln-882	<i>Idem</i>	Phase III, Level MM 52	5795 ± 100	4770–4540 (68.3%) 4910–4400 (95.4%)	<i>Idem</i>
Bln-649	<i>Idem</i>	Phase II, Level ZA 50	5904 ± 66	4880–4700 (68.3%) 4950–4610 (95.4%)	<i>Idem</i>
Bln-777	<i>Idem</i>	Phase II, Level ZA 59	5920 ± 120	4970–4620 (68.3%) 5210–4500 (95.4%)	<i>Idem</i>
Ly-1305	DIKILI TASH, KAVALA (41° 00' N, 24° 40' E)	Dikili Tash, C 75-7, Soil 3 in Boring P 24 associated with industries attributed to end of Troi culture	5030 ± 160	3980–3650 (68.3%) 4240–3390 (95.4%)	Evin <i>et al.</i>
DEM-179	<i>Idem</i>	Dikili Tash 489	5439 ± 197	4460–4010 (68.3%) 4720–3800 (95.4%)	Facorellis 1996
DEM-177	<i>Idem</i>	Dikili Tash 487	5452 ± 44	4347–4262 (68.3%) 4437–4179 (95.4%)	<i>Idem</i>
DEM-178	<i>Idem</i>	Dikili Tash 488	5518 ± 34	4443–4335 (68.3%) 4451–4328 (95.4%)	<i>Idem</i>
Gif-1738	<i>Idem</i>	Dikili Tash 9, Burnng layer from same destruction level as Gif-1423	5600 ± 150	4650–4270 (68.3%) 4790–4060 (95.4%)	Delibrias <i>et al.</i> 1974
Gif-1423	DIKILI TASH, KAVALA (41° 00' N, 24° 40' E)	Dikili Tash 5, Thick destruction level of Late Neolithic of purely Danubian civilization	5650 ± 140	4670–4350 (68.3%) 4840–4230 (95.4%)	Delibrias <i>et al.</i> 1974
DEM-176	<i>Idem</i>	Dikili Tash 486	5697 ± 98	4680–4450 (68.3%) 4770–4350 (95.4%)	Facorellis 1996
DEM-182	<i>Idem</i>	Dikili Tash 490	5739 ± 96	4700–4490 (68.3%) 4790–4370 (95.4%)	<i>Idem</i>
Gif-1424	<i>Idem</i>	Dikili Tash 6, Same destruction level as Gif-1423	5750 ± 140	4770–4450 (68.3%) 4940–4340 (95.4%)	Delibrias <i>et al.</i> 1974
Gif-1425	<i>Idem</i>	Dikili Tash 10, Same destruction level as Gif-1423	5750 ± 140	4770–4450 (68.3%) 4940–4340 (95.4%)	<i>Idem</i>
Gif-1736	<i>Idem</i>	Dikili Tash, G, Soil 12, First level of Late Neolithic	5850 ± 160	4910–4530 (68.3%) 5210–4360 (95.4%)	<i>Idem</i>
HD-9146	MANDALO, PELLA (40° 52' N, 22° 13' E)	1024, Sample from pits that were possibly cut from near surface (EBA)	3860 ± 70	2460–2210 (68.3%) 2560–2140 (95.4%)	Maniatis and Kromer 1990
HD-9907	<i>Idem</i>	8119, Same as sample above	3920 ± 40	2472–2346 (68.3%) 2561–2290 (95.4%)	<i>Idem</i>
HD-9216	<i>Idem</i>	7140, Same as HD-9835	4130 ± 70	2870–2620 (68.3%) 2890–2500 (95.4%)	<i>Idem</i>
HD-9915	<i>Idem</i>	8231, Sample from destruction level of house, Phase III	4130 ± 40	2862–2625 (68.3%) 2872–2581 (95.4%)	<i>Idem</i>

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
HD-9835	<i>Idem</i>	8152, Sample from layer directly overlying destruction level of Phase II (EBA)	4300 ± 100	3090–2700 (68.3%) 3330–2620 (95.4%)	<i>Idem</i>
HD-9596	<i>Idem</i>	7229, Sample from the same destruction level as 1022, west of stratigraphic section. It is associated with storage bin underlying destruction level	5290 ± 70	4230–4010 (68.3%) 4320–3970 (95.4%)	<i>Idem</i>
HD-9834	<i>Idem</i>	7275, Sample from yellow layer underlying destruction level, with remains of burned clay and small pieces of charcoal, Phase II	5340 ± 100	4320–4050 (68.3%) 4350–3970 (95.4%)	<i>Idem</i>
HD-9832	MANDALO, PELLA (40° 52' N, 22° 13' E)	7251, Same as HD-9833	5420 ± 40	4332–4259 (68.3%) 4352–4082 (95.4%)	Maniatis and Kromer 1990
HD-9563	<i>Idem</i>	2202a, Sample from the earliest part of Phase II; corner of house built with wooden posts	5430 ± 70	4360–4180 (68.3%) 4440–4050 (95.4%)	<i>Idem</i>
HD-9939	<i>Idem</i>	2202b, Sample from the same layer as the one above	5430 ± 45	4336–4260 (68.3%) 4360–4079 (95.4%)	<i>Idem</i>
HD-9557	<i>Idem</i>	5032, Sample from destruction of the latest house of Phase Ib	5440 ± 60	4350–4240 (68.3%) 4450–4070 (95.4%)	<i>Idem</i>
HD-9602	<i>Idem</i>	1022, Sample from destruction layer of Phase II	5460 ± 100	4450–4180 (68.3%) 4490–4050 (95.4%)	<i>Idem</i>
HD-9833	<i>Idem</i>	7253, Sample from destruction level of house, Phase II	5460 ± 50	4350–4260 (68.3%) 4450–4180 (95.4%)	<i>Idem</i>
HD-9559	<i>Idem</i>	2156, Sample from destruction layer of a pile house; underlain by baby burial in vase, Phase II	5490 ± 60	4440–4260 (68.3%) 4460–4230 (95.4%)	<i>Idem</i>
HD-9603	<i>Idem</i>	3040, Sample from postholes of wall, Phase Ib	5520 ± 80	4460–4270 (68.3%) 4540–4180 (95.4%)	<i>Idem</i>
HD-9265	<i>Idem</i>	4020, Sample from postholes of a house, Phase Ib	5540 ± 70	4450–4340 (68.3%) 4520–4260 (95.4%)	<i>Idem</i>
HD-9562	<i>Idem</i>	3120, Sample from earliest floor of last house in Phase Ib	5600 ± 70	4490–4360 (68.3%) 4600–4330 (95.4%)	<i>Idem</i>
HD-9601	<i>Idem</i>	4007, Sample from destruction level, probably floor, Phase Ib	5710 ± 150	4720–4370 (68.3%) 4940–4260 (95.4%)	<i>Idem</i>
DEM-796	POLYPLATANOS, IMATHIA (40° 41' N, 23° 12' E)	Δ11/Trench AA', #01010 Depth 0.61 m	5584 ± 28	4451–4370 (68.3%) 4461–4353 (95.4%)	Meroussis 2004
DEM-798	<i>Idem</i>	Δ10/ Trench AA', #01010 Depth 0.60 m	5633 ± 25	4500–4405 (68.3%) 4533–4371 (95.4%)	<i>Idem</i>
DEM-797	<i>Idem</i>	Δ3/ Trench AB', #02011 Depth 0.95 m	5724 ± 34	4610–4503 (68.3%) 4685–4486 (95.4%)	<i>Idem</i>
DEM-931	AYIOS IOANNIS, THASSOS (40° 37' N, 24° 45' E)	Excav. Unit: 8, Section I, Trench IT, Layer 3, Sq. B-I/2-5 Depth 1.82–1.70m	4113 ± 54	2860–2580 (68.3%) 2880–2500 (95.4%)	Maniatis and Papadopoulos 2011
DEM-933	<i>Idem</i>	Excav. Unit: 38, Section I, Trench IB, Layer 11, Sq. A-E/3-5, Depth 1.78–1.58m, FN/EBA transition period	4513 ± 54	3350–3110 (68.3%) 3370–3030 (95.4%)	<i>Idem</i>

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
DEM-932	AGIOS IOANNIS, THASSOS (40° 37' N, 24° 45' E)	Excav. Unit: 42, Section I, Trench ΓB, Layer 12, Sq. B-E/0-4, Depth 1.82–1.62m, FN/EBA transition period	4530 ± 43	3357–3115 (68.3%) 3366–3096 (95.4%)	Maniatis and Papadopoulos 2011
DEM-1072	<i>Idem</i>	Excav. Unit: 10, Section I, Trench ΓII, Layer 4, Sq. B-E/0-1 Depth 1.28–1.16 m, FN/EBA transition period	4563 ± 68	3490–3110 (68.3%) 3520–3030 (95.4%)	<i>Idem</i>
DEM-849	<i>Idem</i>	Excav. Unit: 36, Section I, Trench ΓB, Layer 9, Sq. B-Γ/2-3 Depth 1.80 m (NE of segment K2), FN/EBA transition period	4598 ± 117	3520–3110 (68.3%) 3640–2950 (95.4%)	<i>Idem</i>
DEM-848	<i>Idem</i>	Excav. Unit: 30, Section I, Trench ΓB, Layer 3, Sq. B-E/0-3, Depth 1.84 m, FN/EBA transition period	4816 ± 51	3650–3530 (68.3%) 3700–3380 (95.4%)	<i>Idem</i>
DEM-770	LIMENARIA, THASSOS (40° 37' N, 24° 34' E)	Property Markoulis Trench Ø, Layer 4, Sq. O-Γ/0-3, Sample 2, Depth 0.70 m	3707 ± 64	2200–1980 (68.3%) 2290–1930 (95.4%)	Maniatis and Facorellis 2012
DEM-722	<i>Idem</i>	Property Markoulis Trench Ø, Layer 11, Sq. A-B/1-3, Samples 16, 17, 19, Depth 1.73-2.00 m	5097 ± 40	3961–3806 (68.3%) 3971–3796 (95.4%)	<i>Idem</i>
DEM-1102	<i>Idem</i>	Property Constantinidis Trench Φ, Layer 26, Sq.KA-KI/5-6, Sample 30, Bag 112, NW of pit 8, Depth 6.40-7.00 m	5377 ± 26	4322–4181 (68.3%) 4331–4074 (95.4%)	<i>Idem</i>
RTT-5035	DISPILIO, KASTORIA (40° 29' N, 21° 17' E)	Core DSG1, Square D236c, Depth 1.40-1.70 m	3720 ± 45	2198–2036 (68.3%) 2281–1977 (95.4%)	Karkanias <i>et al.</i> 2010
LTL- 1085A	<i>Idem</i>	Core DSG1, Square D236c, Depth 1.40-1.70 m	3773 ± 55	2290–2060 (68.3%) 2450–2030 (95.4%)	<i>Idem</i>
LTL- 1519A	<i>Idem</i>	Core DSG1, Square D236c, Depth 1.40-1.70 m	3828 ± 55	2430–2150 (68.3%) 2460–2140 (95.4%)	<i>Idem</i>
RTT-5031	<i>Idem</i>	Square 55a east, Depth 0.45 m	4860 ± 45	3699–3545 (68.3%) 3761–3526 (95.4%)	<i>Idem</i>
RTT-5032	<i>Idem</i>	Core DSG2, Square D53d, Depth 0.45-0.66 m	5125 ± 50	3980–3810 (68.3%) 4040–3790 (95.4%)	<i>Idem</i>
RTT-5034	DISPILIO, KASTORIA (40° 29' N, 21° 17' E)	Core DSG4, Square D75a, Depth 1.75 m	5180 ± 60	4050–3820 (68.3%) 4230–3800 (95.4%)	Karkanias <i>et al.</i> 2010
LTL- 1084A	<i>Idem</i>	Square 55a east, Depth 0.45	5253 ± 55	4230–3980 (68.3%) 4230–3970 (95.4%)	<i>Idem</i>
RTT-5033	<i>Idem</i>	Core DSG2, Square D53d, Depth 0.82-1.05 m	5395 ± 45	4331–4183 (68.3%) 4343–4067 (95.4%)	<i>Idem</i>
LTL- 1086A	<i>Idem</i>	Core DSG5, Square D209b, Depth 2.05 m	5774 ± 60	4690–4550 (68.3%) 4780–4490 (95.4%)	<i>Idem</i>
GrN- 30956	<i>Idem</i>	Square D59b, Layer 2, Depth 0.80 m	6040 ± 30	4991–4858 (68.3%) 5016–4844 (95.4%)	<i>Idem</i>
Beta- 48509	MEGALO NISSI GALANIS, KOZANI (40° 22' N, 21° 53' E)	Trench and layer M27γ8.5, Late Neolithic phase	5710 ± 100	4680–4460 (68.3%) 4770–4360 (95.4%)	Fotiadis and Chondrogianni- Metoki 1997

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
Beta-48506	<i>Idem</i>	Trench and layer M26βδ.16, Late Neolithic phase	5730 ± 80	4680–4500 (68.3%) 4770–4370 (95.4%)	<i>Idem</i>
BM-1886R	SERVIA, KOZANI (40° 10' N, 22° 00' E)	Servia	3790 ± 120	2450–2040 (68.3%) 2570–1900 (95.4%)	Bowman <i>et al.</i> 1990
BM-1888R	<i>Idem</i>	Servia	4270 ± 110	3080–2670 (68.3%) 3330–2570 (95.4%)	<i>Idem</i>
OxA-3487	DOLIANA, EPIRUS (39° 54' N, 20° 34' E)	Bas de la couche 2, 0.90-1.10 m	4510 ± 75	3350–3100 (68.3%) 3490–2930 (95.4%)	Douzougli and Zachos 2002
OxA-3488	<i>Idem</i>	Couche 3, 1.35 m, du foyer VII sous le sol I	4560 ± 70	3490–3110 (68.3%) 3520–3030 (95.4%)	<i>Idem</i>
OxA-3489	<i>Idem</i>	Couche 3, 1.40 m, du foyer VII sous le sol I	4740 ± 75	3630–3380 (68.3%) 3650–3370 (95.4%)	<i>Idem</i>
OxA-3486	<i>Idem</i>	Bas de la couche 2, 0.90 m, foyer III	4770 ± 80	3640–3380 (68.3%) 3700–3370 (95.4%)	<i>Idem</i>
DEM-250	THEOPETRA CAVE, KALAMBAKA (39° 41' N, 21° 41' E)	Square Z7, Depth 2.77-3.07 m	4008 ± 83	2840–2350 (68.3%) 2870–2290 (95.4%)	Facorellis <i>et al.</i> 2001
DEM-141	<i>Idem</i>	Square Z11, North-western region, Heap of cemented sediment	5485 ± 102	4450–4240 (68.3%) 4530–4050 (95.4%)	<i>Idem</i>
DEM-920	<i>Idem</i>	Charcoal from hearth, Square A8, Pass 5, South-eastern region, Loose layer, Ash layer II, Depth 0.36-0.48 m	6032 ± 21	4964–4855 (68.3%) 4995–4848 (95.4%)	<i>Idem</i>
GrN-4470	ARGISSA MAGOULA, LARISSA (39° 38' N, 22° 28' E)	Argissa O3, Charred grain from storage vessel from the same level as GrN-4143	3740 ± 35	2201–2051 (68.3%) 2279–2033 (95.4%)	Vogel and Waterbolk 1967
GrN-4471	ARGISSA MAGOULA, LARISSA (39° 38' N, 22° 28' E)	Argissa O4a, same level as GrN-4144	3960 ± 60	2570–2350 (68.3%) 2830–2240 (95.4%)	Vogel and Waterbolk 1967
GrN-4143	<i>Idem</i>	Argissa O4, Burnt storage room of house, Depth 3.60-4.00 m (planum XIII b), Middle Thessalian (=Middle Helladic)	4000 ± 70	2830–2370 (68.3%) 2860–2300 (95.4%)	<i>Idem</i>
GrN-4144	<i>Idem</i>	Argissa O5, Burnt post of house, Depth 5.90-6.00 m (planum XXC), Early Thessalian III (=Early Helladic)	4060 ± 80	2850–2480 (68.3%) 2880–2360 (95.4%)	<i>Idem</i>
H-?	<i>Idem</i>		5630 ± 150	4680–4340 (68.3%) 4840–4080 (95.4%)	Theocharis 1973
DEM-703	GALINI, LARISSA (39° 37' N, 22° 31' E)	Trench A12, #47, Δ.A. 25 Depth 3.68 m	5118 ± 58	3980–3800 (68.3%) 4040–3780 (95.4%)	Toufexis 2000
DEM-706	<i>Idem</i>	Trench A12, #48, Δ.A. 26 Depth 3.67 m	5140 ± 54	4030–3810 (68.3%) 4050–3800 (95.4%)	<i>Idem</i>
DEM-521	CYCLOPS CAVE, YOURA, N. SPORADES (39° 22' N, 24° 10' E)	Trench I'/East, Layer 14, Square 9, Depth 2.03-2.13 m	4814 ± 25	3646–3536 (68.3%) 3652–3528 (95.4%)	Facorellis <i>et al.</i> 1998; Facorellis 2011
DEM-267	<i>Idem</i>	Trench B, Layer 7, Square (1-4), Depth 1.18 m	5311 ± 36	4229–4056 (68.3%) 4256–4005 (95.4%)	<i>Idem</i>

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DEM-494	<i>Idem</i>	Animal Bones, Trench I'/East, Layer 14, Square 9, Depth 2.03-2.13 m	5741 ± 22	4650–4542 (68.3%) 4684–4523 (95.4%)	<i>Idem</i>
Pta-465	PEUKAKIA, VOLOS (39° 21' N, 22° 56' E)	Middle Rachmanistratum	5510 ± 65	4450–4270 (68.3%) 4490–4240 (95.4%)	Maran 1992
Pta-436	<i>Idem</i>	Upper Rachmanistratum	5520 ± 80	4460–4270 (68.3%) 4540–4180 (95.4%)	<i>Idem</i>
Pta-1405	<i>Idem</i>	Lower Rachmanistratum	5630 ± 50	4520–4370 (68.3%) 4560–4350 (95.4%)	<i>Idem</i>
Pta-1404	<i>Idem</i>	Diministratum	5650 ± 55	4550–4380 (68.3%) 4610–4360 (95.4%)	<i>Idem</i>
Pta-981	<i>Idem</i>	Diministratum	5670 ± 65	4600–4400 (68.3%) 4680–4360 (95.4%)	<i>Idem</i>
Pta-1398	<i>Idem</i>	Diministratum	5720 ± 45	4650–4494 (68.3%) 4686–4462 (95.4%)	<i>Idem</i>
Pta-1396	PEUKAKIA, VOLOS (39° 21' N, 22° 56' E)	Diministratum	5740 ± 55	4680–4530 (68.3%) 4710–4460 (95.4%)	Maran 1992
Pta-1395	<i>Idem</i>	Diministratum	5750 ± 40	4678–4545 (68.3%) 4701–4501 (95.4%)	<i>Idem</i>
Pta-1397	<i>Idem</i>	Diministratum	5760 ± 45	4682–4550 (68.3%) 4712–4501 (95.4%)	<i>Idem</i>
Pta-435	<i>Idem</i>	Upper Rachmanistratum	5770 ± 70	4710–4550 (68.3%) 4780–4460 (95.4%)	<i>Idem</i>
P-1671	SESKLO, VOLOS (39° 21' N, 22° 50' E)	S.68.37, Square E3, Late Neolithic (Dimini period)	5622 ± 80	4520–4360 (68.3%) 4680–4340 (95.4%)	Lawn 1973
OxA-19428	PROSKYNAS, LOKRIS (38° 36' N, 23° 10' E)	Burial VII	5649 ± 36	4530–4452 (68.3%) 4550–4369 (95.4%)	Papathanasiou <i>et. al.</i> 2009
OxA-19429	<i>Idem</i>	Burial XIV	5649 ± 39	4534–4451 (68.3%) 4552–4366 (95.4%)	<i>Idem</i>
OxA-19264	<i>Idem</i>	Burial IX	5657 ± 30	4520–4458 (68.3%) 4551–4374 (95.4%)	<i>Idem</i>
DEM-104	SKOTEINI CAVE, THARROUNIA, EUBOEA (38° 31' N, 23° 59' E)	Trench A, Layer 6, Square 4, Depth 0.80 m	4812 ± 42	3640–3544 (68.3%) 3641–3538 (95.4%)	Sampson 1993a
DEM-107	<i>Idem</i>	Trench A, Layer 15 Depth 1.95-2.00 m, Floor surface with hearth	5658 ± 54	4500–4460 (68.3%) 4520–4460 (95.4%)	<i>Idem</i>
DEM-113	<i>Idem</i>	Trench A, Layer 21 Depth 2.75 m, Floor surface underlying hearth deposits	5706 ± 64	4550–4520 (68.3%) 4550–4500 (95.4%)	<i>Idem</i>
DEM-143	<i>Idem</i>	Trench C, Layer 24, Squares (5-6), Depth 3.20 m, Floor surface with hearth	5738 ± 39	4588–4548 (68.3%) 4612–4542 (95.4%)	<i>Idem</i>
DEM-103	<i>Idem</i>	Trench A, Layer 12 Depth 2.75 m, Floor surface underlying hearth deposits	5769 ± 89	4680–4600 (68.3%) 4690–4560 (95.4%)	<i>Idem</i>
DEM-138	<i>Idem</i>	Trench A, Layers 4-5, Square 8, Depth 0.50-0.65 m, Disturbed burial	5817 ± 37	4721–4616 (68.3%) 4777–4555 (95.4%)	<i>Idem</i>

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DEM-144	<i>Idem</i>	Trench C, Layer 14, Square 2, Depth 2.00 m, Dark sediment with angular stones and hearths	5935 ± 69	4900–4720 (68.3%) 5000–4620 (95.4%)	<i>Idem</i>
DEM-145	SKOTEINI CAVE, THARROUNIA, EUBOEA (38° 31' N, 23° 59' E)	Trench A, Layer 16, Squares (1-2), Depth 2.15 m, Hearth deposit in reddish occupation layer	5961 ± 40	4903–4790 (68.3%) 4942–4729 (95.4%)	Sampson 1993a
Gif-2122	CORYCIAN CAVE, PARNASOS, DELPHI (38° 29' N, 22° 30' E)	70/02, Layer 2	5230 ± 290	4340–3710 (68.3%) 4710–3380 (95.4%)	Delibrias <i>et al.</i> 1974
DEM-1139	SARAKENOS CAVE, AKRAIPHNIO, BOEOTIA (38° 28' N, 23° 14' E)	Trench A, Layer 5, Early Helladic phase	3859 ± 26	2452–2287 (68.3%) 2460–2210 (95.4%)	Sampson ed. 2011
DEM-672	<i>Idem</i>	Trench A, Layer 7, Square 6, Depth 1.40 m, Dark brown sediment with gray spots, Late Neolithic IIb phase	4895 ± 31	3695–3650 (68.3%) 3760–3637 (95.4%)	Sampson <i>et al.</i> 1999
DEM-1065	<i>Idem</i>	Trench A, Layer 8, Late Neolithic IIa phase	5407 ± 22	4326–4257 (68.3%) 4331–4239 (95.4%)	Sampson <i>et al.</i> 2011
DEM-1140	<i>Idem</i>	Trench A, Layer 9, Late Neolithic Ib phase	5671 ± 20	4522–4465 (68.3%) 4541–4459 (95.4%)	<i>Idem</i>
DEM-671	<i>Idem</i>	Trench A, Layer 7, Square 3, Depth 1.40 m, Dark brown sediment with gray spots, Charcoal	5820 ± 52	4770–4600 (68.3%) 4790–4550 (95.4%)	Sampson <i>et al.</i> 1999
DEM-815	<i>Idem</i>	Trench C, Layer 12, Late Neolithic Ib phase	5874 ± 22	4772–4719 (68.3%) 4795–4702 (95.4%)	Sampson <i>et al.</i> 2011
DEM-1141	<i>Idem</i>	Trench C, Layer 13, limit between the Late Neolithic Ia and Late Neolithic Ib phases	5931 ± 25	4842–4777 (68.3%) 4881–4725 (95.4%)	<i>Idem</i>
DEM-1063	<i>Idem</i>	Trench A, Layer 11, late stage of the Late Neolithic Ia	6062 ± 29	5016–4933 (68.3%) 5051–4851 (95.4%)	<i>Idem</i>
DEM-1062	<i>Idem</i>	Trench A, Layer 11, late stage of the Late Neolithic Ia	6081 ± 33	5035–4946 (68.3%) 5204–4851 (95.4%)	<i>Idem</i>
DEM-1064	<i>Idem</i>	Trench A, Layer 10, Late Neolithic Ia phase	6096 ± 24	5051–4982 (68.3%) 5200–4941 (95.4%)	<i>Idem</i>
DEM-1061	<i>Idem</i>	Trench A, Layer 11, late stage of the Late Neolithic Ia phase	6117 ± 55	5210–4960 (68.3%) 5220–4860 (95.4%)	<i>Idem</i>
DEM-1138	<i>Idem</i>	Trench A, Layer 14, Middle Neolithic/ Late Neolithic Ia phase	6125 ± 42	5207–4992 (68.3%) 5210–4953 (95.4%)	<i>Idem</i>
LJ-3053	LEUKANDI, EUBOEA (38° 24' N, 23° 40' E)	Middle Helladic II	3730 ± 50	2200–2040 (68.3%) 2290–1980 (95.4%)	Linick 1977
LJ-3042	<i>Idem</i>	Middle building phase of Early Bronze III	3930 ± 40	2477–2346 (68.3%) 2565–2294 (95.4%)	<i>Idem</i>
LJ-3046	LEUKANDI, EUBOEA (38° 24' N, 23° 40' E)	Same as LJ-1832	3970 ± 40	2569–2461 (68.3%) 2579–2346 (95.4%)	Linick 1977
LJ-3047	<i>Idem</i>	End of Early Bronze III occupation	4010 ± 40	2572–2478 (68.3%) 2832–2461 (95.4%)	<i>Idem</i>

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LJ-1832	<i>Idem</i>	Last building phase of Early Bronze III	4020 ± 60	2620–2470 (68.3%) 2860–2350 (95.4%)	<i>Idem</i>
LJ-3048	<i>Idem</i>	Same as LJ-3053	4690 ± 90	3630–3370 (68.3%) 3660–3120 (95.4%)	<i>Idem</i>
AAR-9671	PANGALI, AITOLIA (38° 21' N, 21° 36' E)	TR1/STR 3/5.-6.p	5530 ± 50	4450–4340 (68.3%) 4460–4270 (95.4%)	Heinemeyer 2006
P-317	EUTRESIS, SW THEBES, BOEOTIA (38° 17' N, 23° 09' E)	Early Helladic II (Eutresis Group VIII)	4210 ± 64	2900–2680 (68.3%) 2920–2580 (95.4%)	Ralph and Stuckenrath 1962
P-307	<i>Idem</i>	Early Helladic I (Eutresis Group III)	4440 ± 64	3330–2940 (68.3%) 3340–2920 (95.4%)	<i>Idem</i>
P-306	<i>Idem</i>	Early Helladic I (Eutresis Group IV)	4450 ± 75	3330–3020 (68.3%) 3350–2930 (95.4%)	<i>Idem</i>
P-273	EMPORIO, CHIOS (38° 11' N Lat, 26° 03' Long)	Early Bronze Age (Troy I)	3980 ± 97	2830–2310 (68.3%) 2860–2210 (95.4%)	<i>Idem</i>
LJ-3604	LAKE VOULIAGMENI, PERACHORA (38° 02' N, 22° 53' E)	Sample 2B, Trench A1, Level 5E Thick destruction level of final phase of Early Bronze II period bldg.	3740 ± 40	2203–2045 (68.3%) 2285–2029 (95.4%)	Fishman and Lawn 1978
DIC-448	<i>Idem</i>	Sample 2B, Trench A1, Level 5E Thick destruction level of final phase of Early Bronze II period bldg.	3900 ± 65	2470–2290 (68.3%) 2570–2200 (95.4%)	<i>Idem</i>
DIC-451	<i>Idem</i>	Sample above thick destruction level	4010 ± 105	2850–2350 (68.3%) 2880–2230 (95.4%)	<i>Idem</i>
P-2474	<i>Idem</i>	Sample 2B, Trench A1, Level 5E Thick destruction level of final phase of Early Bronze II period bldg.	4060 ± 60	2840–2490 (68.3%) 2870–2470 (95.4%)	<i>Idem</i>
DIC-449	<i>Idem</i>	Sample above thick destruction level	4270 ± 200	3310–2580 (68.3%) 3510–2340 (95.4%)	<i>Idem</i>
DEM-550	CAVE OF LAKES, KASTRIA, KALAVRYTA (37° 57' N, 22° 08' E)	Trench C2, Layer 10, Depth 1.95-2.10 m, Late Neolithic Ib phase, Phase III	5312 ± 29	4228–4068 (68.3%) 4232–4053 (95.4%)	Facorellis and Maniatis 1997
DEM-549	CAVE OF LAKES, KASTRIA, KALAVRYTA (37° 57' N, 22° 08' E)	Trench C, Layer 9, Depth 1.85-1.95 m, Late Neolithic Ib phase, Phase III	5396 ± 27	4321–4251 (68.3%) 4325–4240 (95.4%)	Facorellis and Maniatis 1997
DEM-344	<i>Idem</i>	Trench B1, Layer 3, Depth 0.80-1.00 m, Late Neolithic Ib phase, Phase III	5439 ± 45	4332–4270 (68.3%) 4336–4264 (95.4%)	<i>Idem</i>
DEM-394	<i>Idem</i>	Trench C, Layer 22, Depth 3.80-3.85 m, Late Neolithic Ib phase, Phase III	5444 ± 105	4330–4270 (68.3%) 4340–4270 (95.4%)	<i>Idem</i>
DEM-270	<i>Idem</i>	Trench A2, Layer 13, Depth 1.85-1.95 m, Late Neolithic Ib phase, Phase III	5447 ± 29	4336–4271 (68.3%) 4340–4266 (95.4%)	<i>Idem</i>

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DEM-271	<i>Idem</i>	Trench A2, Layer 16, Depth 2.30-2.35 m, Late Neolithic Ib phase, Phase III	5484 ± 34	4346–4335 (68.3%) 4352–4331 (95.4%)	<i>Idem</i>
DEM-395	<i>Idem</i>	Trench C, Layer 28, Depth 4.80-4.90 m, Late Neolithic Ib phase, Phase III	5657 ± 32	4494–4463 (68.3%) 4518–4457 (95.4%)	<i>Idem</i>
Gif-1610	KITSOS CAVE, LAVRION (37° 44' N, 24° 2' E)	Kitsos 1610, Layer 3, Sounding 2 Hearth in homogeneous ashy layer corresponding to a dwelling level with associated Neolithic potsherds	5350 ± 200	4440–3960 (68.3%) 4600–3710 (95.4%)	Delibrias <i>et al.</i> 1974
Gif-1280	<i>Idem</i>	Kitsos 335, Layer 3a, Sounding 1 Dwelling level, Early Neolithic	5470 ± 150	4460–4070 (68.3%) 4650–3970 (95.4%)	<i>Idem</i>
Gif-1670	<i>Idem</i>	Kitsos 1830-31, Layer 4, Hearth Φ 3, Dwelling level with associated Neolithic potsherds	5550 ± 150	4580–4240 (68.3%) 4720–4040 (95.4%)	<i>Idem</i>
Gif-1832	<i>Idem</i>	Kitsos 2/540, Layer 4, Fireplace	5650 ± 130	4650–4350 (68.3%) 4800–4250 (95.4%)	Delibrias <i>et al.</i> 1974
Gif-2541	<i>Idem</i>	Ref. B II, c 8, Level 7	5680 ± 150	4690–4370 (68.3%) 4900–4240 (95.4%)	Delibrias <i>et al.</i> 1986
Gif-1612	<i>Idem</i>	Kitsos 1733, Layer 4, Sounding 2, Hearth Φ 2, Hearth in dwelling level	5700 ± 140	4710–4370 (68.3%) 4900–4270 (95.4%)	Delibrias <i>et al.</i> 1974
Gif-1729	<i>Idem</i>	Kitsos 1826, Layer 4, Sounding 2	5750 ± 130	4770–4460 (68.3%) 4900–4350 (95.4%)	<i>Idem</i>
Gif-2539	KITSOS CAVE, LAVRION (37° 44' N, 24° 2' E)	Ref. B I, b 7, Level 4	5840 ± 150	4900–4520 (68.3%) 5190–4360 (95.4%)	Delibrias <i>et al.</i> 1986
Gif-2538	<i>Idem</i>	Ref. B II, d 9, Level 3	5950 ± 150	5040–4620 (68.3%) 5220–4490 (95.4%)	<i>Idem</i>
P-299	LERNA, ARGOLIC GULF (37° 32' N, 22° 45' E)	Early Helladic III (3 rd Building Phase, Lerna Period IV)	3750 ± 97	2330–1990 (68.3%) 2460–1930 (95.4%)	Ralph and Stuckenrath 1962
P-303A	<i>Idem</i>	Middle Helladic (1 st Phase, Lerna Period V)	3750 ± 112	2340–1980 (68.3%) 2480–1880 (95.4%)	<i>Idem</i>
St-1969	<i>Idem</i>	Lerna 1	3765 ± 70	2290–2040 (68.3%) 2460–1980 (95.4%)	Engstrand 1967
P-312	<i>Idem</i>	Late Early Helladic II (Last Phase, Lerna Period III)	3840 ± 72	2460–2200 (68.3%) 2480–2050 (95.4%)	Ralph and Stuckenrath 1962
P-300	<i>Idem</i>	Early Early Helladic III (Early Phase, Lerna Period IV)	3870 ± 61	2460–2290 (68.3%) 2490–2140 (95.4%)	<i>Idem</i>
P-320	<i>Idem</i>	Late Early Helladic II or Early Early Helladic III (Late Phase, Lerna Period III, or Early Phase, Lerna Period IV)	3930 ± 65	2550–2300 (68.3%) 2580–2210 (95.4%)	<i>Idem</i>
P-321	<i>Idem</i>	Late Early Helladic II (Lerna Period III)	3940 ± 68	2570–2310 (68.3%) 2620–2210 (95.4%)	<i>Idem</i>
St-1980	<i>Idem</i>	Lerna 9	3970 ± 75	2580–2350 (68.3%) 2850–2210 (95.4%)	Engstrand 1967

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
P-319	<i>Idem</i>	Late Early Helladic II (Last Phase, Lerna Period III)	3980 ± 66	2580–2350 (68.3%) 2850–2290 (95.4%)	Ralph and Stuckenrath 1962
P-318	<i>Idem</i>	Late Early Helladic II (Last Phase, Lerna Period III)	4070 ± 72	2850–2490 (68.3%) 2870–2470 (95.4%)	<i>Idem</i>
P-1659	FRANCHTHI CAVE, PORTO CHELI, ARGOLIS (37° 26' N, 23° 8' E)	Area F/A, Unit 39, Depth 1.25–1.55 m, very Late Neolithic	5163 ± 78	4050–3800 (68.3%) 4230–3780 (95.4%)	Lawn 1971
P-1660	<i>Idem</i>	F/A Balk, Unit 72 S, Depth 1.87–1.95 m, Late Neolithic	5261 ± 64	4230–3990 (68.3%) 4260–3960 (95.4%)	<i>Idem</i>
P-1630	<i>Idem</i>	F/A Balk, Unit 89 N, Depth 2.24–2.30 m, Late Neolithic	6110 ± 86	5210–4940 (68.3%) 5290–4810 (95.4%)	<i>Idem</i>
HD-10163	AGIOS DEMETRIOS, TRIPHYLLIA, LEPREO (37° 26' N, 21° 43' E)		5330 ± 75	4250–4050 (68.3%) 4330–3990 (95.4%)	Zachos C. 1987a
HD-10020	AYIOS DEMETRIOS, TRIPHYLLIA, LEPREO (37° 26' N, 21° 43' E)		5400 ± 35	4326–4241 (68.3%) 4341–4077 (95.4%)	Zachos C. 1987a
P-1397	HALIEIS, PORTO CHELI ACROPOLIS, ARGOLIS (37° 19' N, 23° 8' E)	<i>Murex trunculus</i> , <i>Cerithium vulgatum</i> and <i>Cardium edule</i> associated with Late Neolithic pottery from pit in bedrock	5102 ± 72	3620–3440 (68.3%) 3640–3350 (95.4%)	Lawn 1971
DEM-259	KOUVELEIKI CAVE A' ALEPOCHORI, LAKONIA (36° 57' N, 22° 46' E)	Trench A4, Layer 2, Pass 4, Depth 0.50 m, Fine loose ashy sediment with a lot of stones	5797 ± 115	4790–4520 (68.3%) 4940–4370 (95.4%)	Sampson et al. 1999
DEM-261	<i>Idem</i>	Trench Z, No 1, Layer 2, Pass 3, Depth 1.40 m, Compact sediment overlying a hearth	5807 ± 53	4720–4590 (68.3%) 4790–4540 (95.4%)	<i>Idem</i>
DEM-264	<i>Idem</i>	Trench A, Layer 2, Pass 4, Depth 1.37 m, Compact coarse sediment with ash	5849 ± 112	4730–4710 (68.3%) 4770–4690 (95.4%)	<i>Idem</i>
DEM-518	<i>Idem</i>	Trench A3, Layer 3, Pass 4, Depth 0.48 m, Fine loose sediment without stones	5881 ± 43	4796–4708 (68.3%) 4848–4617 (95.4%)	<i>Idem</i>
DEM-260	<i>Idem</i>	Trench B2, No 1, Layer 2, Pass 5, Depth 0.50–0.60 m, Fine gray sediment with many big stones	5885 ± 57	4830–4700 (68.3%) 4930–4600 (95.4%)	<i>Idem</i>
DEM-519	<i>Idem</i>	Trench A3, Layer 4, Pass 5, Depth 0.52 m, Wet fine relatively compact layer with a lot of organics in the region of hearths	5932 ± 28	4843–4771 (68.3%) 4896–4723 (95.4%)	<i>Idem</i>
DEM-604	KOUVELEIKI CAVE B' ALEPOCHORI, LAKONIA (36° 57' N, 22° 46' E)	Square 3,20–3,30, Layer 6–6a, Pass 7, Depth 1.55–1.62 m	5017 ± 62	3890–3780 (68.3%) 3910–3770 (95.4%)	Sampson et al. 1999
DEM-397	<i>Idem</i>	#1509, No 2, Square 4,40, Layer 3, Pass 5, Depth 1.65 m, Dark brown sediment	5198 ± 82	4030–3980 (68.3%) 4040–3970 (95.4%)	<i>Idem</i>

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
DEM-396	<i>Idem</i>	#1509, No 3, Square 4,40, Layer 3, Pass 5, Depth 1.65 m, Dark brown sediment	5263 ± 45	4149–4003 (68.3%) 4222–4000 (95.4%)	<i>Idem</i>
DEM-398	<i>Idem</i>	#1508, No 1, Square 4,40, Layer 3, Pass 4, Depth 1.45 m, Dark brown compact sediment	5320 ± 48	4229–4072 (68.3%) 4234–4057 (95.4%)	<i>Idem</i>
OxA-22567	ALEPOTRYPA CAVE, MANI (36° 38' N, 22° 23' E)	No A 311, Square/area OSS II, Phase C	5094 ± 31	3957–3811 (68.3%) 3965–3799 (95.4%)	Papathanasiou A. 2013, pers. comm.
OxA-26355	<i>Idem</i>	No B1SC4, Square/area B1, Layer I.3, Phase C	5097 ± 31	3959–3811 (68.3%) 3966–3800 (95.4%)	<i>Idem</i>
OxA-22011	<i>Idem</i>	No A 1291, Square/area B4, Phase C	5158 ± 36	4037–3948 (68.3%) 4044–3811 (95.4%)	<i>Idem</i>
OxA-22010	<i>Idem</i>	No IIA 489, Square/area B-TH9, Phase C	5193 ± 35	4040–3967 (68.3%) 4146–3949 (95.4%)	<i>Idem</i>
OxA-22009	<i>Idem</i>	No A 480, Square/area B-TH10, Phase C	5195 ± 50	4050–3960 (68.3%) 4230–3810 (95.4%)	<i>Idem</i>
OxA-26833	<i>Idem</i>	No B1SC3, Square/area B1, Layer I.2, Phase C	5195 ± 75	4230–3850 (68.3%) 4240–3800 (95.4%)	<i>Idem</i>
OxA-26359	<i>Idem</i>	No PCCCS3, Square/area PC, Layer upper part, Phase C	5235 ± 29	4048–3986 (68.3%) 4226–3969 (95.4%)	<i>Idem</i>
OxA-22008	<i>Idem</i>	No A 452, Square/area OSS II, Phase C	5272 ± 36	4226–4000 (68.3%) 4231–3990 (95.4%)	<i>Idem</i>
OxA-22566	<i>Idem</i>	No A 372, Square/area OSS II, Phase C	5275 ± 31	4226–4005 (68.3%) 4232–3993 (95.4%)	<i>Idem</i>
Δ94-4	<i>Idem</i>		5465 ± 30	4348–4269 (68.3%) 4358–4260 (95.4%)	Papa- thanassopoulos 2011
Δ94-7	<i>Idem</i>		5500 ± 30	4366–4329 (68.3%) 4447–4267 (95.4%)	<i>Idem</i>
Δ94-3	<i>Idem</i>		5540 ± 30	4444–4346 (68.3%) 4450–4341 (95.4%)	<i>Idem</i>
P-1280	KEPHALA, KEA (37° 42' N, 24° 18' E)	Transition from Late Neolithic to Early Bronze age	4826 ± 56	3660–3530 (68.3%) 3710–3380 (95.4%)	Stuckenrath and Lawn 1969
P-2574	AGIOS NIKOLAOS, KEA (37° 42' N, 24° 18' E)	Sample 1, Field No. B-6.97, Room XV, Area B, Cuts 15, 16 and 17, Period G (LM IA)	3820 ± 70	2440–2150 (68.3%) 2470–2040 (95.4%)	Fishman and Lawn 1978
DEM-873	FTELIA, MYKONOS (37° 27' N, 25° 22' E)	Trench B3, Layer 2 Square 12,16 Depth 0.40 m	5661 ± 40	4537–4457 (68.3%) 4595–4371 (95.4%)	Facorellis and Maniatis 2002
DEM-988	<i>Idem</i>	Trench A4, Layer 8 Square 2, Depth 1.40 m	5721 ± 59	4670–4490 (68.3%) 4710–4450 (95.4%)	<i>Idem</i>
DEM-1029	<i>Idem</i>	Trench A4, Layer 7, Square 5 Depth 1.25 m, Hexaplex trunculus <i>Linnaeus, 1758</i>	5725 ± 21	4601–4528 (68.3%) 4670–4496 (95.4%)	<i>Idem</i>
DEM-870	FTELIA, MYKONOS (37° 27' N, 25° 22' E)	Trench A5, Layer 10 Square 2, Depth 1.50 m	5830 ± 33	4765–4617 (68.3%) 4787–4597 (95.4%)	Facorellis and Maniatis 2002

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
DEM-854	<i>Idem</i>	Trench B4, Layer 5 Square 16, Depth 1.20 m	5853 ± 32	4770–4691 (68.3%) 4796–4616 (95.4%)	<i>Idem</i>
DEM-872	<i>Idem</i>	Trench A5, Layer 10 Square 6, Depth 1.50 m	5915 ± 22	4828–4729 (68.3%) 4836–4725 (95.4%)	<i>Idem</i>
DEM-975	<i>Idem</i>	Trench A4, Layer 7 Square 5, Depth 1.25 m	5932 ± 21	4839–4783 (68.3%) 4876–4726 (95.4%)	<i>Idem</i>
DEM-987	<i>Idem</i>	Trench A4, Layer 9 Square 4, Depth 1.50 m	5945 ± 49	4898–4746 (68.3%) 4945–4715 (95.4%)	<i>Idem</i>
DEM-853	<i>Idem</i>	Trench B4, Layer 5 Square 12, Depth 1.20 m	6052 ± 40	5005–4856 (68.3%) 5057–4838 (95.4%)	<i>Idem</i>
DEM-989	<i>Idem</i>	Trench A4, Layer 8 Square 1, Depth 1.40 m	6079 ± 41	5051–4936 (68.3%) 5206–4846 (95.4%)	<i>Idem</i>
OxA-7409	ZAS CAVE, NAXOS (37° 06' N, 25° 33' E)	Zas 3, Trench E4, EC III (Kastri phase) = Zas IV	3830 ± 40	2389–2202 (68.3%) 2459–2148 (95.4%)	Manning 2008
OxA-7408	<i>Idem</i>	Zas 1, Trench E4, EC III (Kastri phase) = Zas IV	4000 ± 45	2572–2472 (68.3%) 2833–2349 (95.4%)	<i>Idem</i>
OxA-7641	<i>Idem</i>	Zas 13a, Trench E4, FN-EC I (rolled run bowl phase) = Zas IIb	4010 ± 50	2580–2470 (68.3%) 2840–2350 (95.4%)	<i>Idem</i>
OxA-7470	<i>Idem</i>	Zas 13b, Trench E4, shell, FN-EC I (rolled run bowl phase) = Zas IIb	4345 ± 40	3011–2908 (68.3%) 3089–2891 (95.4%)	<i>Idem</i>
OxA-7471	<i>Idem</i>	Zas 15, Trench D5, EC I (Lakkoudhes phase) = Zas III	4425 ± 40	3265–2930 (68.3%) 3330–2920 (95.4%)	<i>Idem</i>
OxA-7599	<i>Idem</i>	Zas 12, Trench E4, LN (Late Saliagos phase) = Zas I	5245 ± 40	4222–3981 (68.3%) 4229–3971 (95.4%)	<i>Idem</i>
OxA-7407	<i>Idem</i>	Zas 7, Trench E4, LN (Late Saliagos phase) = Zas I	5285 ± 40	4228–4044 (68.3%) 4236–3992 (95.4%)	<i>Idem</i>
OxA-7640	<i>Idem</i>	Zas 10, Trench E4, FN 'Attic- Kephala' = Zas IIa	5525 ± 65	4450–4330 (68.3%) 4500–4260 (95.4%)	<i>Idem</i>
P-1393	SALIAGOS, CYCLADES (37° 03' N, 25° 05' E)	No. 4, <i>Spondylus</i> shell, Square L1 L4, Phase 3	5716 ± 85	4270–4060 (68.3%) 4340–3970 (95.4%)	Stuckenrath and Lawn 1969
P-1333	<i>Idem</i>	No. 11, <i>Spondylus</i> shell, Square O1 L69, depth 0.75 m	5775 ± 84	4340–4150 (68.3%) 4420–4030 (95.4%)	<i>Idem</i>
P-1368	<i>Idem</i>	No. 2, <i>Spondylus</i> shell, Square L1 L5	5909 ± 87	4470–4300 (68.3%) 4590–4210 (95.4%)	<i>Idem</i>
P-1396	SALIAGOS, CYCLADES (37° 03' N, 25° 05' E)	No. 21, <i>Spondylus</i> shell, Square O1 L72, depth 2.75 m, Phase 1	6074 ± 79	4650–4460 (68.3%) 4720–4360 (95.4%)	Stuckenrath and Lawn 1969
P-1311	<i>Idem</i>	No. 15, dark soil from the hearth area of Square V1 L11	6172 ± 74	5220–5020 (68.3%) 5310–4940 (95.4%)	<i>Idem</i>
OxA-3149	DHASKALEIO KAVOS, KEROS (36° 54' N, 25° 40' E)	Human femur fragment, Keros-Syros culture (Early Cycladic II)	3920 ± 100	2570–2220 (68.3%) 2850–2060 (95.4%)	Hedges <i>et al.</i> 1992
OxA-3151	<i>Idem</i>	Human skull fragment, Keros-Syros culture (Early Cycladic II)	4000 ± 100	2840–2350 (68.3%) 2870–2220 (95.4%)	<i>Idem</i>

<i>Lab code</i>	<i>Site</i>	<i>Name</i>	<i>Age (years BP)</i>	<i>Calendar date (years BC)</i>	<i>Reference</i>
OxA-3150	<i>Idem</i>	Human phalange fragment, Keros-Syros culture (Early Cycladic II)	4150 ± 80	2880–2630 (68.3%) 2900–2500 (95.4%)	<i>Idem</i>
OxA-4005	MARKIANI, AMORGOS (36° 47' N, 25° 49' E)	Ma89, T1, 1, 44, Designated Markiani III = EC II Keros-Syros phase	3730 ± 65	2270–2030 (68.3%) 2340–1940 (95.4%)	Manning 2008
OxA-3291	<i>Idem</i>	T1, 1, 27, Markiani IV = EC III Kastri phase	3810 ± 80	2440–2140 (68.3%) 2470–2030 (95.4%)	<i>Idem</i>
OxA-4007	<i>Idem</i>	Ma90, T1, 4, 31, Markiani IV = EC III Kastri phase	3860 ± 60	2460–2230 (68.3%) 2480–2140 (95.4%)	<i>Idem</i>
OxA-3292	<i>Idem</i>	T1, 1, 37, Designated Markiani III = EC II Keros-Syros phase	3920 ± 80	2560–2290 (68.3%) 2620–2150 (95.4%)	<i>Idem</i>
OxA-4006	<i>Idem</i>	Ma90, T1, 4, 29, Markiani IV = EC III Kastri phase	3990 ± 65	2620–2350 (68.3%) 2850–2290 (95.4%)	<i>Idem</i>
OxA-3294	<i>Idem</i>	T3, 2, 8, Designated Markiani III = EC II Keros-Syros phase	4060 ± 75	2850–2480 (68.3%) 2880–2460 (95.4%)	<i>Idem</i>
OxA-3296	<i>Idem</i>	T8, 2, 7, Designated Markiani III = EC II Keros-Syros phase	4080 ± 75	2860–2500 (68.3%) 2870–2480 (95.4%)	<i>Idem</i>
OxA-3293	<i>Idem</i>	T3, 2, 6, Designated Markiani III = EC II Keros-Syros phase	4090 ± 90	2860–2500 (68.3%) 2900–2460 (95.4%)	<i>Idem</i>
OxA-3295	<i>Idem</i>	T9, 1, 8, Designated Markiani III = EC II Keros-Syros phase	4105 ± 80	2860–2570 (68.3%) 2880–2490 (95.4%)	<i>Idem</i>
OxA-4004	<i>Idem</i>	Ma89, T7, 10, Markiani II = EC I-II Kampos phase	4160 ± 65	2880–2670 (68.3%) 2900–2580 (95.4%)	<i>Idem</i>
OxA-3297	<i>Idem</i>	T1, 1, 6, Markiani II = EC I-II Kampos phase	4380 ± 100	3320–2900 (68.3%) 3360–2760 (95.4%)	<i>Idem</i>
OxA-4003	<i>Idem</i>	Ma89, T7, 8, Markiani II = EC I-II Kampos phase	4390 ± 65	3260–2910 (68.3%) 3330–2900 (95.4%)	<i>Idem</i>
DEM-1312	AKROTIRI, SANTORINI (36° 21' N, 25° 24' E)	Shaft 42, M3/42N011, Depth: +19.05 m	3664 ± 25	2127–1980 (68.3%) 2136–1957 (95.4%)	Maniatis 2012
OxA-12174	AKROTIRI, SANTORINI (36° 21' N, 25° 24' E)	M31/67 N069, (early) Middle Cycladic	3745 ± 29	2202–2061 (68.3%) 2278–2037 (95.4%)	Maniatis 2012
OxA-11819	<i>Idem</i>	M31/67 N069, (early) Middle Cycladic	3768 ± 32	2276–2138 (68.3%) 2291–2046 (95.4%)	<i>Idem</i>
OxA-12173	<i>Idem</i>	M31/67 N069, (early) Middle Cycladic	3788 ± 29	2283–2146 (68.3%) 2334–2135 (95.4%)	<i>Idem</i>
P-2561	<i>Idem</i>	Sample 1976.2, grain from pithos <i>pi</i> 3, <i>delta</i> 1	3800 ± 50	2330–2140 (68.3%) 2460–2050 (95.4%)	Fishman and Lawn 1978
DEM-1647	<i>Idem</i>	Shaft 54A, M20/54A020, Depth: +17.613–16.443 m	3840 ± 25	2343–2209 (68.3%) 2456–2203 (95.4%)	Maniatis 2012
DEM-1608	<i>Idem</i>	Shaft 35, M23/35N065, Depth: +14.47 m	3929 ± 25	2474–2349 (68.3%) 2489–2308 (95.4%)	<i>Idem</i>
P-2560	<i>Idem</i>	Sample 1976.1, grain from pithos <i>pi</i> 2, <i>delta</i> 1	3980 ± 70	2620–2350 (68.3%) 2850–2240 (95.4%)	Fishman and Lawn 1978
DEM-1530	<i>Idem</i>	Shaft 51, M51/9 (West. extension), Depth: +17.19m	4618 ± 25	3494–3360 (68.3%) 3500–3351 (95.4%)	Maniatis 2012



Figure 5.7. Map of Greece showing the geographic location of the aforementioned archaeological sites.

Figure 5.9 shows the calendar dates in years BC within 1 standard deviation (1σ) sorted by age from the aforementioned archaeological sites (Table 5.1). Only 27 samples (Bln-880, Bln-879: Sitagroi; Ly-1305: Dikili Tash, Kavala; DEM-722: Limenaria, Thassos; DEM-933, DEM-932, DEM-849, DEM-1072, DEM-848: Ayios Ioannis, Thasos; RTT-5031, RTT-5032: Dispilio, Kastoria; OxA-3487, OxA-3488, OxA-3489, OxA-3486: Doliana, Epirus; DEM-703: Galini, Larissa; DEM-521: Cyclops Cave, Youra; DEM-104: Skoteini Cave, Tharrounia; DEM-672: Sarakenos Cave, Akraifnio; LJ-3048: Leukandi, Euboea; P-306: Eutresis, Boeotia; P-1397: Halieis, Porto Cheli; DEM-604: Kouveleiki Cave B, Alepochori; OxA-22567, OxA-26355: Alepotrypa Cave, Areopolis;

P-1280: Kephala, Kea; and DEM-1530: Akrotiri, Santorini) fall clearly (probability 95.4%) within the 4th millennium (4000–3000 BC). Moreover, considering the mean calibrated dates (1σ), 65 samples (25.4%) and 75 samples (29.3%) give a calendar date within the first and the second half of the 5th millennium, respectively, 22 samples (8.6%) and 17 samples (6.6%) within the first and the second half of the 4th millennium, respectively, thus reflecting once again the scarcity of the ^{14}C dates falling in the 4th millennium from Greek sites. Finally, 77 samples (30.1%) give a calendar date more recent than 3000 years BC.

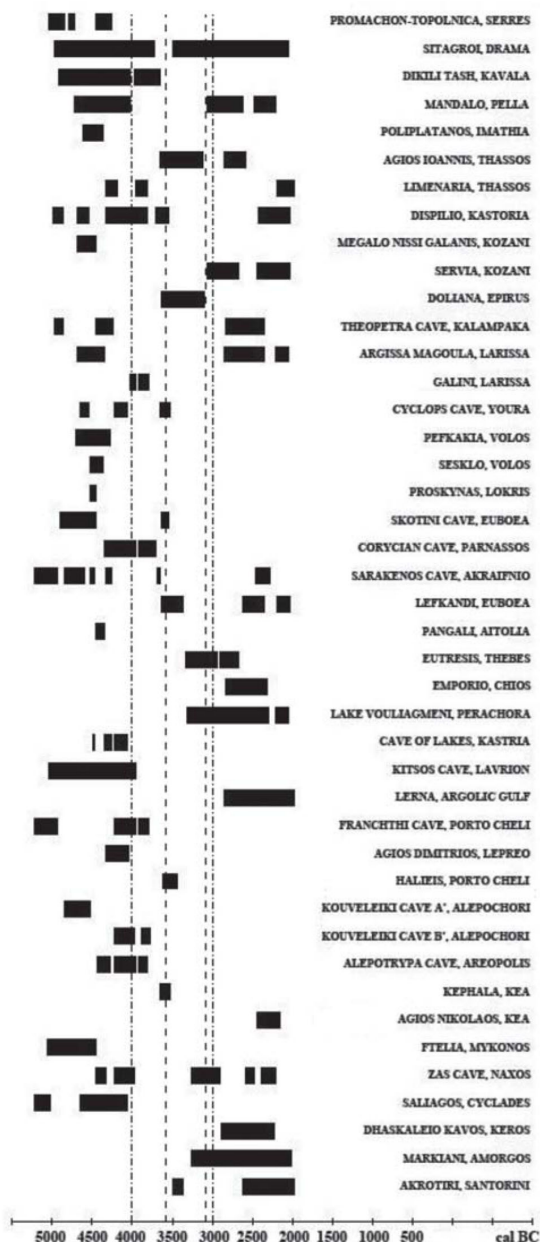


Figure 5.8. Age spans in calendar years BC (within 1σ) of sites in the order in which they appear in Table 5.1 based solely on the radiocarbon dated samples. Time gaps in the sequence of the

radiocarbon dates of a site do not necessarily reflect an abandonment of the particular site during the corresponding periods.

Figure 5.10 presents a part of the international calibration curve (IntCal13) from 4500–2700 BC showing the plateaus which are responsible for the wide range of the calendar ages of the samples (see examples on the plot) that fall within this period. A solution to this inconvenience could be either employing the Bayesian Analysis of Radiocarbon Dates¹¹¹ of samples from undisturbed and well defined archaeological deposits of a site or the wiggle-match dating technique using tree-ring sequences¹¹² of wood or charred wood samples in the fortunate case that they bear a large number of rings.

Conclusions

It is obvious enough that in order to further clarify the situation that led to the abandonment of settlements and cave-use around 4000 BC, more radiocarbon dates and palaeo-environmental research from respective archaeological sites in Greece is needed.

Due to the plateaus of the international calibration curve within the time period under consideration, more refinement of the dates could be achieved by cautious use of Bayesian statistics, as well as the potential use of the wiggle matching technique.

Notes

1 The authors would like to thank S. Katsarou, D. Malamidou, F. Mavridis, M. Pandelidou-Gofa, A. Papathanasiou, K. Psimogiannou, J. Rambach, L. Stefani, C. Televantou, G. Toufexis and E. Zachou for providing useful information on published radiocarbon dates, sites, finds, and publications. Many thanks also to S. Dietz and K. Sarri for their patience and support.

2 All millennia mentioned in this paper are BC.

3 See Anthony 2007; Anthony and Chi (eds) 2010 for overviews of cultural developments in South-East Europe and Coleman 2000; Coleman 2011 on possible migrations to Greece from the Balkans.

4 e.g. Alram-Stern 2007b.

5 Coleman 2011, 13–20.

6 cf. Coleman 1992, 248–9.

7 e.g. Todorova 2003 (Early and Middle Chalcolithic/Eneolithic 4800/4700–4200/4150 BC, Final Chalcolithic/Eneolithic/Final Chalcolithic/Transitional 4200/4150–3700 BC, proto-Bronze Age 3700–3200). Other scholars consider the EBA to start in South-East Europe ca. 3500 BC (e.g. Nikolova 1999; Manzura 2005). In Greece, a date around 3100 BC rather than 3200 BC now seems preferable for the beginning of the current Early Helladic I (EH I, cf. Manning 1995; Pullen 2011, 15). Early Cycladic I (EC I) also likely began about 3100 BC (e.g. Manning 2008; Maragou *et al.* 2006).

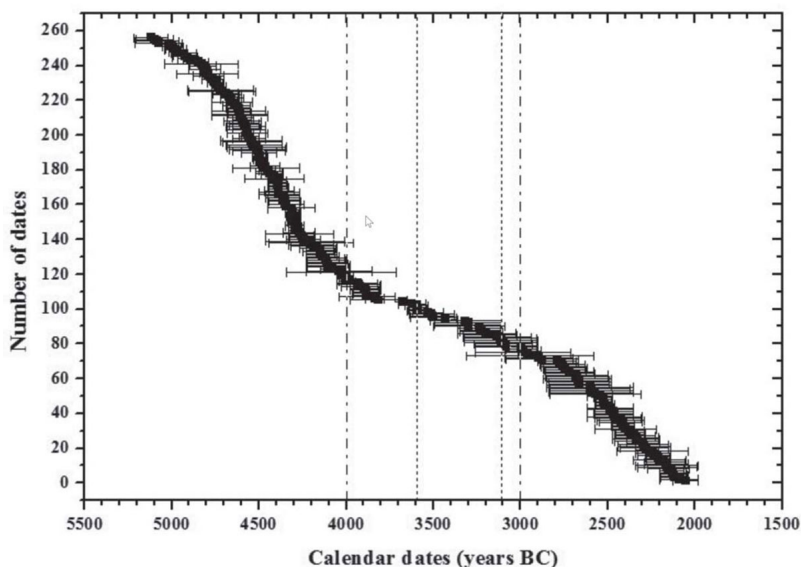


Figure 5.9. Calendar dates in years BC within 1 standard deviation (1σ) sorted by age from the aforementioned archaeological sites (Table 5.1). Only 27 samples fall clearly within the 4th millennium.

8 Seferiades 2010. On the origin of the *Spondylus* and *Glycymeris* shells in the Aegean and their manufacture into ornaments there see a recent summary in Ivanova 2012, 353–6.

9 e.g. Sitagroi (Elster and Renfrew 2003; Renfrew *et al.* 1986, 477–85).

10 Zachos 2010.

11 For listings of sites see Coleman 2000, 112–16 and for more recent discussions see Coleman 2011. Maniatis and Papadopoulos (2011, 24–5) suggest a gap in the North Aegean from west Macedonia to Thrace lasting at various sites some 700–1000 years.

12 Chapman *et al.* 2006 (Varna); Todorova (ed.) 2002 (Durankulak). For contacts in the 5th millennium by sea along the west shore of the Black Sea, see Ivanova 2012, for those between the Maikop culture in the Kuban and South-East Europe see Anthony 2007, 285–98.

13 See *e.g.* Anthony 2007; Anthony 2010; Coleman 2000, Coleman 2011, 24. Some settlements were burned just before the abandonment (*e.g.* the uppermost layer of Tell Kozareva Mogila, Georgieva *et al.* this volume) and Yunatcite, where human burials were found in the burnt debris (Mazanov and Mishina this volume). Özdoğan (2003b, 354) writes that in North-West Turkey “by the early stages of the fourth millennium BC almost all sites of the Middle Chalcolithic period in the region have been deserted after a layer of heavy burning.” Recent excavations in west Anatolia (Çevik, Derin & Caymaz, and Günel this volume) suggest that the long chronological gap from the later 5th millennium to the later 4th millennium as attested in the Troad between Kumtepe 1A and 1B is gradually being filled in.

14 Anthony 2007, 249–62; Bichbaev 2010.

15 Manzura 1999; Morintz and Roman 1968, 47–77.

16 Ivanova 2013.

17 Anthony 2007, 354–5; Ivanova 2013, 268–71. See further below.

18 *e.g.* Todorova 2003; Vaysov 2002.

19 See the many contributions to Roman and Diamandi (eds) 2001; for recent dating Horvath *et al.* 2008.

20 The earliest evidence for wagons is probably a representation on a beaker of the Funnel Beaker Culture (“Trichterbecherkultur”) dated about 3600 BC found at Bronocic in Poland (Anthony 2007, 65–76). The use of wagons spread with extraordinary speed throughout western Asia and Europe between 3500 BC and 3300 BC, from the Pontic-Caspian steppes to western Europe, and the dates from radiocarbon-dated examples overlap so closely that the process of spread cannot be placed in a sequence. Domestic horses

were probably first introduced into South-East Europe toward the end of the 5th millennium, as is attested by a series of stone horse - head maces in sites dating to the last centuries of the 5th millennium (Anthony 2007, 234–6; Anthony and Brown 2011; Dimitrov 2007a). For daggers see (Anthony 1996; Vaysov 1993; Vaysov 2002). Daggers of copper first occur in South-East Europe in the middle Danube area (Transylvania and E. Hungary) around 4000 BC, where they were locally made. A bone hilt found on a dagger near the chest of a boy between 9 and 14 years old buried at Durankulak (Vaysov 2002) and another particularly long and elaborate hilt in a burial at Ogorodnoe in Moldova (Ivanova 2013, Fig. 6.21) show that the objects identified as daggers were truly hand weapons.

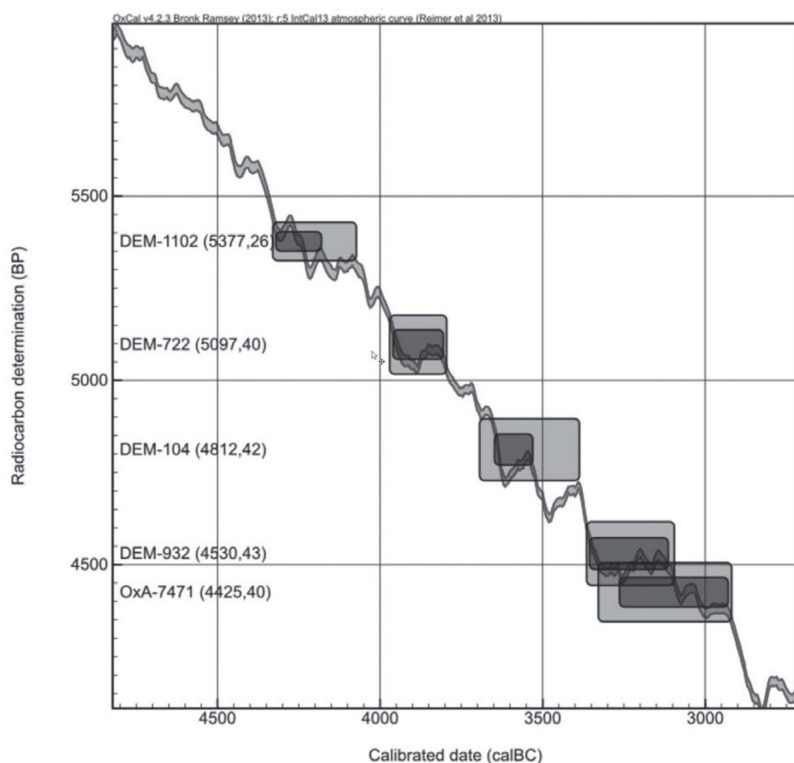


Figure 5.10. Part of the international calibration curve (IntCal13) from 4500–2700 BC showing the plateaus which are responsible for the wide range of the calendar ages of the samples (see examples) that

fall within this period.

21 Coleman 2000; Coleman 2011, 29 and note 118.

22 To an earlier estimate of at least 185 sites from Central Greece and the Peloponnese (Coleman 2011, 15) we must add many others from Thrace, Macedonia and Thessaly.

23 Toufexis 2016.

24 Mikrothives is not included in [Table 5.1](#) because no details of the radiocarbon dates are available, although they fall in the second half of the 4th millennium (Adrymi-Sismani 2007, 84).

25 For instance, the radiocarbon dates at Tharrounia Cave are a poor match for the sequence of excavated units and the published evidence for a continuous sequence at the Sarakenos Cave is problematic, see Coleman 2000, 123–31; Coleman 2011, 12–20. Sampson, the excavator of both caves, uses a somewhat different chronological system from that of most other researchers ([Figure 5.1](#), as taken from Sampson *et al.* 2009, 203–4, 220–8; *cf.* Sampson *et al.* 2009, fig. 5), and detailed stratigraphic evidence for each division has yet to be made available. No finds have been published in connection with the Leukandi date and the Halieis dates are associated with a small body of unstratified material (Coleman 2011, 16–19).

26 On the Zas Cave see recently Zachos and Douzougli n.d.

27 French 1972, 17–18.

28 Hansen 1937, 540–2.

29 Caskey and Caskey 1960; Goldman 1931.

30 Caskey and Caskey 1960, 132–7. The thin black burnished ware and most of the vessels with painted decoration (Caskey and Caskey 1960, 134, nos II.9–II.19) are clearly of Late Neolithic date and some of the other pottery from group II might date to the Chalcolithic phase, such as the “scoop” (Caskey and Caskey 1960, 135, no. II.43), although a date at the beginning of the EBA is possible. The stamp seal (Caskey and Caskey 1960, 135–6, no. II.47) is probably Middle Neolithic. See Blegen *et al.* 1950 for Troy I parallels to the bowl with tabbed rim. For “red slipped ware” see Caskey and Caskey 1960, 135, 162: “A few fragments of red or reddish bowls with slightly incurving rim in group II may represent the precursors of the typical red vessels of Early Helladic I: but

these fragments were so very few in number and were found in such a thin stratum that their presence could be regarded as intrusive.” A spindle whorl from group II (Caskey and Caskey 1960, 137, no. II.48) may also be Early Helladic. The results of Goldman’s earlier excavations were essentially the same as those of the Caskeys, although she did not subdivide the earliest levels into so many groups.

31 Caskey and Caskey 1960, 139.

32 Sampson 2008b.

33 Although rolled rim bowls at Eutresis are mentioned by Sampson (2008b, 242–3) and Karantzali in Marangou *et al.* (eds) 2006, 102, the only possible examples published by the Caskeys are two rim sherds from group III (Caskey and Caskey 1960, 142 and fig. 4, III.13–14). However, the body shape of these sherds is uncertain (Caskey and Caskey 1960, 142) and the rims are more bulbous than those of the usual types of rolled rims.

34 Caskey and Caskey 1960, 163.

35 Since their recognition as significant by French (1961, 1964a, 1964b) and Renfrew (1972), rolled rims on bowls and basins have been frequently discussed and instances catalogued: e.g. Johnson 1999, 325; Katsarou-Tzeveleki and Schilardi 2008, 69–70; Mavridis 2010, tab. 2, Fig. 11.122; Phelps 2004, 118; Karantzali in Marangou *et al.* 2006, 102; Sampson 1993a, 161–2; Sampson 2008b, 242–3; Sotirakopoulou 1986, 300–3; Sperling 1976; Vitelli 2007, 124–5, fig. 83. They occur already in the Late Neolithic at Franchthi (Vitelli 1999, 29). Chalcolithic examples well-dated to the second half of the 5th millennium come from the Kitsos Cave (Lambert ed. 1981, 286–7, 305, 316, pl. xxv, CP5, CP 43, with pattern burnishing on the inside); Ayios Demetrios (Zachos 1987a, 64, 91, 114–20). Probable Chalcolithic examples also come from Tharrounia (Sampson 1993a, 161–2, fig. 121, 9–12, pl. 157) and the Sarakenos Cave (Sampson 2008b, 243, pl. 48; rolled rim bowls are dated in Sampson *et al.* 2009, 226 to the beginning of the Late Neolithic II period, i.e. ca. 4300 BC, along with pattern burnished ware) and other sites mentioned by Phelps (2004, 118). Examples are also known at Kontra-Gliate (Nazou this volume) dating to about the same time as Kephala in Keos, and at Petromagoula (Chatziangelakis 1984, fig. 3, no. 14) and Mikrothives (Adrymi-

Sismani 2007, 75, pl. XII, j.) about the middle of the 4th millennium.

36 Kumtepe (Sperling 1976); Markiani (Marangou *et al.* (eds) 2006).

37 Sperling 1976.

38 Tuncel and Şahoğlu this volume.

39 The term in either version is ambiguous. Is the pottery heavy in the sense of thick walled or particularly coarse or is it heavily burnished with a particularly thick slip or unusually shiny burnish?

40 *cf.* Coleman 2011, 19. Radiocarbon dates indicate that FCP 5 was of short duration, lasting from about 4300–4000 BC. The 34 published sherds assigned to FCP 5.2 are all described as “from poor contexts” (Vitelli 1999, figs 69–70, 75). Some, such as two collared jars (Vitelli 1999, fig. 69a, c) and bowls with tubular lug-handles (Vitelli 1999, fig. 70b, g, h) could well date to the later centuries of the 4th millennium.

41 Vitelli 2007, 117, figs 78–84. The “mixed fill” comprised “deposits with varying percentages of Early Helladic and Neolithic sherds, but no recognizable features” (Vitelli 2007, 135).

42 Vitelli 2007, fig. 83.

43 Vitelli 1999, 104, note 7.

44 Vitelli 2007, fig. 69e, f, h and fig. 70e, g, h.

45 Chalcolithic examples of grooved bowls in Greece occur in Sitagroi III in a variety of profiles and in a “clumsy grooved” as well as a grooved ware (Evans 1986, 402–3, Fig. 12.11.3, pl. xciv, top) and at Kastria (Sampson (ed.) 1997, 128, fig. 39). Dated EB IA and EB IB examples are common in levels IV and V at Sitagroi (Sherratt 1986, 435, Fig. 13.4, pl. xcvi, top). They occur at the EB IA Petromagoula-Doliana group of sites discussed below only at Petromagoula. Less well dated examples occur at Lerna, as mentioned above, and in wells from the North Slope at Athens to be further discussed below (Immerwahr 1971, nos 70–5, pls 6, 69). Further north, where channelled decoration occurs on a great variety of patterns and shapes including jugs, there are many parallels in the Late Chalcolithic phase, *e.g.* Durankulak (Todorova (ed.) 2002, *passim*), rarely in the Transitional/Cernavoda I phase, *e.g.* Sălcuța III (Nikolova 1999, Fig. 6.4.2, no. 1); Kolarovo I (Nikolova 1999, Fig. 6.5, nos 1, 5); Cernavoda I (Manzura 1999, Fig. 7.18, no. 5, the shoulder of a jug or jar) and during the second

half of the 4th millennium in the Cernavoda III-Boleraz phase (Roman and Diamandi (eds) 2001, *passim*) and in related EBA cultures (e.g. the Nakovana Culture on the Adriatic coast, Tasic 1995, 42, pl. 4). The Lerna examples have relatively short strokes and tend to be on a narrow band on the body just below its juncture with the rim bands, they seem close to those from Sitagroi III. The Athens examples apparently have longer strokes like those from the Cernavoda III period and might be of later date. A channelled bowl or cup from group III at Eutresis (Caskey and Caskey 1960, III.10, 140 and pl. 47) was probably a stray from an earlier level. If grooved pots were plebeian versions of gold and silver vessels, as often suggested, their origin and development may remain obscure, given our lack of the prototypes.

46 Fig. 5.3 (Caskey and Caskey 1960, II.28–II.42, fig. 4, pl. 43). All but one are from “open bowls and small basins” (Caskey and Caskey 1960, 134–5) and none have the carinated or collared profiles such as are found at Franchthi (Vitelli 1999, fig. 70a–h). There is no decoration except for one vessel, a small flaring basin with white painted decoration which bears no similarity in shape or decoration to any of the published pottery from the latest phase at Franchthi. Notably lacking in the published material from Eutresis are large coarse vessels with raised bands (“rope decoration”) such as occurred in the latest phases at Franchthi and at Lerna in the Chalcolithic phase or the “mixed fill”.

47 Immerwahr 1971.

48 Immerwahr 1971, pls 13, 69, no. 189; *cf.* Raczky 1991. Such handles are also attested at Pefkakia, Tharrounia, Prosymna, Klenia, the Alepotrypa Cave and Emborio in Chios; *cf.* Johnson 1999, 325, 328, fig. 3; Kalicz 2001, map 2.

49 Immerwahr 1971, pl. 12, nos 171, 172. Balkan parallels: Johnson 1999, 325 and fig. 3. Tsepi parallels: Pantelidou-Gofa 2005.

50 See note 45 above.

51 Immerwahr 1971, 32, no. 81.

52 e.g. Coleman 1977, 59, no. 97, 75, no. 137. Lugs with vertical extensions are found earlier at Ftelia (Sampson ed. 2002, 98, “arched lugs”). The pottery from the N. Slope wells is not, in general, a close match with that from Kephala. For instance, incised

decoration which is abundant at Kephala is almost completely lacking from the wells.

53 The finds were briefly described in a preliminary report in 1966 (Platon 1966) and revisited by Immerwahr in 1964 (Immerwahr 1971, 3, note 17) and more recently by Zachos and Douzougli (Zachos and Douzougli n.d., 5–7). They were apparently homogeneous from top to bottom. For the conical-necked jars see Platon 1966, pl. 63 middle; Zachos and Douzougli n.d., fig. 3.a and for the two storage amphoras see Platon 1966, pl. 63 bottom; Zachos and Douzougli n.d., fig. 3b. Globular red polished jars like those from the North Slope wells are also mentioned by Platon 1966, 42–3.

54 Zachos and Douzougli n.d., fig. 3a, top (reconstruction).

55 Similar storage amphoras can be found for instance in Cernavoda I contexts (Manzura 1999, Fig. 7.7.4, amphoras types 3, 4). Finds similar to those from the North Slope wells and the West Slope well have been found elsewhere around the Acropolis but with few stratigraphic indications (*e.g.* Levi 1930–1; Immerwahr 1971, 3; Sapouna-Sakellarakis 1986).

56 Coleman 2011. My “Petromagoula-Doliana group” is essentially the same as the “Doliana culture” of Zachos and Douzougli (n.d., 7–11). Although their work became available to me only after the conference in 2013, it is a pleasure to profit from it now. Petromagoula on the north-west shore of the gulf of Pagasai was first excavated in the 1980s (Chatziangelakis 1984); Doliana in Epirus in 1990 (Douzougli and Zachos 2002; Zachos and Douzougli n.d.); Mikrothives in the 1990s (Adrymi-Sismani 2007); Rachi-Panayia first in the 1970s and recently by E. Zachou, whom I thank for showing me material from the site.

57 Adrymi-Sismani 2007, 74.

58 Coleman 2011, 27–8 and fig. 7 (map); Maran 1998a; Maran 1998b; Nemejkova-Pavukova 1992. The Balkan examples are associated with the Baden-Boleraz cultural group. Examples are still being found or newly recognized, *e.g.*, Bondar 2001, fig. 8; Spacic 2008.

59 For instance, the Greek bowls were not incised on the inside with network patterns like many of those from further north. The Mikrothives bowls must have been made locally, to judge by the

exceptional number of examples (elsewhere the greatest number of “Petromagoula-Doliana/Bratislava” bowls found at a single site is eight from Jariciste in W Serbia (Spasic 2008, 33 and pl. 2) and their variety (they can be separated into a finer and less fine group, Adrymi-Sismani 2007, 75–6). Although the place of origin of such bowls is regarded as unclear by Spasic (2008, 37), their distribution suggests to me an origin in the Balkan countries. I also suggest that both this type of bowl and the rituals that came with them were brought to Greece by immigrants.

60 Vaysov 1993; Vaysov 2002, 159–75.

61 Adrymi-Sismani 2007, fig. 112.1.

62 The closest parallel lacking a handle or lug is a marble piece from Varna, painted on its outer surface and dating about 4300 BC (Takaoğlu 2005, 61, pl. 30, no. 201). Fragments of possibly similar clay vessels, but with vertical handles/lugs ending at the lip, come from Sitagroi IV (Sherratt 1986, Fig. 13.9.1) and Dakovo-Grabrovac in Croatia (Markovic and Minichreiter 2003, pl. 3, 14). A somewhat similar vessel with incised decoration and a lug near the rim comes from Pecsbogata in Hungary (Kalicz 2001, fig. 4, centre right).

63 Chatziangelakis 1984, Fig. 3.13,14.

64 Douzougli and Zachos (2002) and Adrymi-Sismani (2007) have pointed to these Balkan parallels, although they do not go so far as I do in suggesting migrations from the Balkans to Greece.

65 Coleman 2011, 27–8.

66 Sherratt 1986.

67 Papadopoulos *et al.* this volume. Maniatis and Papadopoulos (2011) argue that the Ayios Ioannis dates are best interpreted as dating the settlement to *ca.* 3370–3100 BC.

68 *cf.* Maniatis & Papadopoulos 2011, fig. 3 with Adrymi-Sismani 2007, pl. XI, b.

69 For Limenaria see Papadopoulos and Malamidou 2008. The authors see the closest parallels for the probable ritual area in the western Mediterranean. A close connection with sanctuaries of the Pontic-Caspian steppes is more likely in my view (see *e.g.* Telegin and Mallory 1994, 23–7). For Skala Sotiros see Koukouli-Chryssanthaki 1993 and for a summary of the sculpture found there, which is not fully published, see Alram-Stern 2004, part 2, 838–40. The sculpture precedes the earliest settlement remains at the site,

which date early in the EB IB. It includes a menhir stele of slate 1.7 m in height representing a warrior with a dagger in his right hand. Such daggers appear in rock art later than the earliest menhirs (see further below). Other marble sculpture depicts anthropomorphic figures in the round.

70 Coleman 2000, 125–7. Attributions of material from surface surveys in the North-East Peloponnese to stages of the 4th millennium (e.g. Pullen 1995) are somewhat in question until parallels can be found in stratified excavation layers, although the surveys are in general of great archaeological value.

71 Gauss this volume; Alram-Stern 2006. As already mentioned (no. 37), some unstratified material from the Franchthi Cave and Lerna may belong to an EB IA phase.

72 The finds from Tsoungiza are published in admirable detail: Pullen 2011, pp. 18–35. For the scoops compare Pullen 2011, figs. 2.10, no. 4, 2.11, nos 8, 9 and fig. 2.12, nos 13–16 with those from Sremski Karlovsci published by Tasić (2001, fig. 11, no. 1 and fig. 12, nos 4–9). A bowl with horizontal handles rising above the rim (Pullen 2011, fig. 2.10, no. 5) is somewhat similar to a bowl with a low pedestal and horizontal handles from a grave in the Athenian Agora: Immerwahr 1971, no. 384, pls 27, 71. Immerwahr (1971, pp. 92–93) dates the grave early in the Middle Helladic period, or perhaps the period of Lerna IV, although she cites other scholars who have dated it to the Neolithic period.

73 Papathanassopoulos 2011, 15–20.

74 Papathanassopoulos 2011, cat. nos 92–5 (daggers), no. 117 (vertically grooved bowl), nos 122–4 (basins), no. 130 (globular jar with vertically pierced lugs, nos 184, 185 (marble bowls).

75 See, e.g. the four cultural units proposed by Sampson (2002, fig. 154) and Kouka (2008).

76 Herling *et al.* 2008.

77 Maxwell 2002.

78 The “rechaud” vessel, a distinctive type found at Ftelia (Sampson (ed.) 2002, 71–3) and Tharrounia (Sampson 199a, 102), has parallels in shape in Chalcolithic sites in the North-West Black Sea area (e.g. at Durankulak, Todorova ed. 2002, 1, 98, fig. 113, “Fusschallen”, 107, fig. 123, nos 1–9).

79 Cullen *et al.* 2013, 106–9. Two Chalcolithic marble figurines

from E. Lokris, each of a distinctive protome-like type (Psimogiannou 2008, 161, pl. 3.23; the figurine at left from near Tomb IV) are almost identical to figurines from Alepotrypa (Papathanasopoulos 2011, 227–8, nos 181 and 182) and suggest the great range of seaborne interaction.

80 Coleman 1977, 110; Manning 2008.

81 Coleman 1977, 110. Ayios Demetrios (Zachos 1987a); Franchthi (Vitelli 1999); Kitsos (Lambert (ed.) 1981); Pefkakia (Weisshaar 1989); Proskynas (Psimogiannou 2008); Tharrounia (Sampson 1993a).

82 Coleman 1977, pls 23, 67, nos 103, 109.

83 Takaoğlu 2005. For other new finds of such rhyta, see T. Takaoğlu & A.O. Bamyacı in this volume and for somewhat similar conical vessels of later date see note 62.

84 e.g. Proskynas (Psimogiannou 2008, 36–46, 137–61, 99–114); Tharrounia (Sampson 1993a, 233–40), and a site in the Theban plain 2 km north-east of Thebes (Tsota forthcoming). General parallels for the Kephala graves also occur at Alepotrypa Dyrrou (Papathanasopoulos 2011).

85 Many burials of, or inspired by, the cultures of the Pontic-Caspian steppes have characteristics in common with those in the Chalcolithic and EBA Aegean. For instance, tombs of the Suvorovo-Novodanilovka culture of the late 5th millennium (Anthony 2007, 251–5; Anthony 2008; Bicbaev 2010) were sometimes earth-cut with niches or entrances resembling those of EBA Tsepi, Manika and Syros and a place for ceremonies involving food and drink were incorporated into the cemetery. Slab-sided steppe graves about the middle of the 4th millennium such as those of the Post Mariupol culture (Anthony 2007, 263–82) and Kemi-Oba Culture of the Crimea (Anthony 2007, 339) are close in form to those of the Aegean EBA. The steppe burials were often covered by tumuli but platforms and markers such as at Kephala and Tsepi were sometimes provided for individual graves. The large 5th millennium cemeteries at Varna (Slavchev 2008) and Durankulak (Todorova (ed.) 2002) also provide somewhat general parallels for the Kephala cemetery. The similarity of shapes of some of the larger storage vessels from Kephala with those in the Cernavoda III-Boleraz group in the Balkans (*cf.* Coleman 1977, fig. 33, no. 134 with Morintz and

Roman 1968, [Fig. 14.4](#)) probably do not indicate a close relationship, given that such utilitarian shapes are common South-East Europe.

[86](#) Liritzis (2010) gives an average date by luminescence of two samples from the fortification wall to 3520 ± 540 BC and an average date by obsidian hydration of two blades to 3400 ± 200 BC.

[87](#) e.g. Televantou 2008. Descriptions of pattern burnishing at Strofilas suggest that it differs in details from that found at Kephala.

[88](#) e.g. Televantou, 2008; Televantou 2012.

[89](#) For Neolithic and Chalcolithic boat models in the Aegean, which are generally of more simple types than those of Strofilas and Astypalaia, see, e.g. Marangou 2001.

[90](#) The indications of many oars or paddles suggest that the more elaborate ships were of considerable length and it is probably that they were constructed of planks. Heavy axes and adzes, made now often of arsenical copper in the Black Sea area, were available for cutting and shaping such planks. The high stems and sterns would have limited the intake of water when going to windward or leeward in a breeze.

[91](#) Vlachopoulos 2012. The ships are depicted at a large scale, up to 0.70 m in length.

[92](#) Coleman 1985; Broodbank 1989.

[93](#) The Aegean ships have angular profiles with high prows and sterns, like many roughly contemporaneous Egyptian ships (cf. [Fig. 5.5](#) with Vinson 1987, figs 29, 30, 40, 50, 53d, 55, 57, 58, 59, 60, 61b), they are often shown with paddles extending from the bottom (cf. [Fig. 5.5f](#) with Vinson 1987, figs 54a, 55a, 57a; 58, 60a, 61b, 62a–b, 63) as well as parallel lines extending upward from the hulls which are probably also meant to depict paddles (cf. [Fig. 5.5a–d](#) with Vinson 1987, figs 55c–d, 56a–b, 57a, 61b, 66c, 68b, 69), their prows are often higher than their sterns and sometimes have figureheads or ensigns (cf. [Fig. 5.5a, c, e–g](#) with Vinson 1987, figs 53a, 55a, 58, 61b, 68b) and sometimes tassels or streamers (cf. [Fig. 5.5d](#) and later Cycladic “frying pans” such as Coleman 1985, ill. 5 with Vinson 1987, figs 40a, 53d, 55a and d, 57a, 64b, 65b, 69, 73b) and steering oars are often shown at their sterns (cf. [Fig. 5.5g](#) with Vinson 1987, figs 53a, 57a, 58, 61b, 62a, 63, 72, 73b–c, 74b). An

Egyptian “sickle-shaped ship” also has a fish ensign like those on two of the ships from Astypalaia (Fig. 5.5f–g) and on Cycladic “frying pans”, as noted long ago by Evans (Evans 1925, figs 2, 4, cf. Vinson 1987, fig. 46). Egyptian ships were also constructed of planks from an early stage of development. For instance, at least 14 planked boats more than 17 m long were found in graves at Abydos in Egypt dating to the First Dynasty (e.g. Ward, 2006, 123–4) and it is likely that most, if not all, early Egyptian ships of the angular profile type were planked. That primitive sails might also have been used in the early Aegean is also possible, to judge by Egyptian prototypes. Rectangular sails occur on Egyptian depictions from at least as early as late Predynastic time onward (e.g. Vinson 1987, figs 29c, 39, 62a, 63, 70c, 73), although they are rarely depicted in such early representations. If such sails were in use in the Aegean in the 4th and 3rd millennium, they would not necessarily have been represented in art, since they would have been useful only with the wind astern; at the other points of sailing, the lack of keels would have led to broaching.

94 Evans 1925.

95 Ivanova (2012, 339–44) recently reviewed the evidence for early travel by sea in the Black Sea. Her estimates of the summer sailing season and maximum range of voyages during it (200–300 km, one way) seem low to me.

96 Ivanova 2012, 356. For instance, copper sources in the Strandzha provided about half of the copper at Varna and Durankulak in the second half of the 5th millennium, which was probably brought north by ship in the form of “rods and bangles” (Ivanova 2012, 350). Other exports from the Strandzha were probably gold, malachite and carnelian beads, and finished ornaments of Mediterranean shells (Ivanova 2012, 351).

97 Anthony (2007, 354–5), referring to the finding of glass beads in Usatovo contexts. Amber beads from the Baltic also occur in Usatovo contexts. Anthony (2007, 355) comments that “regardless of the direction of borrowing, the shared riveted dagger types of Usatovo and the Aegean point to long-distance contacts between the two regions, perhaps in oared longboats.” Ivanova (2013, 209–10, 224–6), on the other hand, views the contacts of the Usatovo group as of a more restricted nature. Since daggers of several other types

were being produced in the Balkans several centuries before the Usatovo type, whereas daggers are rare in the Aegean before the mid -4th millennium, it is likely that the Usatovo type originated in the North-West Pontic region. Contacts between the Pontic region and the Near East in the later 4th millennium are also attested by finds of faience, turquoise and lapis lazuli in the North Caucasus which may have come overland from the east and south-east (Ivanova 2013, 108–29).

98 Televantou 2011, fig. 53; Mantu *et al.* 1997, fig. 63.

99 Vlachopoulos 2012, fig. 69.

100 Footprints (Televantou 2010, figs 57, 58; Televantou 2012, fig. 62). *cf.* Telegin and Mallory 1994, figs 1.2, 3, 4.2; 5.3, 8–9, 10.1, 14, 24.2–3, 39), “cup marks” (Televantou 2010 fig. 56; Televantou 2012, fig. 58). *cf.* Telegin and Mallory 1994, [figs 21.1–2, 24.4](#)), “topographic representations” (Televantou 2012, fig. 60). *cf.* Telegin and Mallory 1994, fig. 6), animals (Televantou 2009, figs 59, 63, 64; Televantou 2010, fig. 56). *cf.* Ivanova 2013, [figs 5.5, 5.16, 6.8](#); Telegin and Mallory 1994, figs 6, 8–9, 14). Small circles made with a hollow punch are a feature shared by the Astypalaia rock art and the Balkans (Vlachopoulos 2012, 71, fig. 68). *cf.* Telegin and Mallory 1994, [Fig. 5.2](#), no. 3).

101 A fragment from Troy, possibly of a menhir, has spiral decoration (Blegen *et al.* 1950, fig. 93) and two menhirs in the museum in Sophia have elaborate spiral compositions but no details of dating or findspots are available to me. Spiral decoration is common, however, on the Bratislava/Petromagoula-Doliana pans and I think it likely that spiral decoration was widespread during the EB 1A phase in the Aegean area. Clumsy running spirals at Strofilas (Televantou 2012, fig. 60), which must have been difficult to produce in stone, surely have a prototype in some other medium. The eastern menhirs have very restricted fields for designs and fairly rigid conventions.

102 See above no. 69.

103 A complex composition at Strofilas with pecked spirals, not apparently paralleled in the Pontic-Caspian area and SE Europe, has general parallels in North Italy and Western Europe (Televantou 2012, fig. 58; *cf.* Fedele 2013, fig. 4, M1).

104 See recent publications by Zachos and Douzougli (n.d.);

Manning 2008.

105 Zachos 1990, 37, no. 9. The jar has four small lugs on the shoulder like those of the Coțofeni stage. Coțofeni stage in the middle Danube area. It has parallels in two jars from Kurgan 1 in Tarnava (or Veliko Tyrnovo) in North Bulgaria (e.g. Anthony 2007, 361–5, Fig. 14.6) which has a pair of handles extending vertically from the shoulder and a small lug similarly oriented between them. Both jars are highly decorated with incision and crusted decoration. The Kurgans at Tarnava are associated with the Yamna migrations and dated *ca.* 3000 B.C. A jar from Mikrothives in the Archaeological Museum of Volos appears to be similar in general shape.

106 Zachos and Douzogli (n.d.), fig. 1 (“rolled rim bowls” with rounded transitions from walls to bottoms), fig. 4 (jar with globular body and tall cylindrical collar and four vertically pierced lugs around the belly); the latter is quite similar to a jar from Strofilas (Televantou 2008, Fig. 6.18).

107 Coleman 2000; Coleman 2011, 29 and note 118.

108 Anthony 2007; Anthony 2008.

109 Reimer *et al.* 2013.

110 Bronk Ramsey 2009; Bronk Ramsey 2013.

111 Bronk Ramsey 2009.

112 Galimberti *et al.* 2004; Newton *et al.* 2005.

Casting doubts on metallurgy and the transition to social complexity: The evidence from the Aegean

Maria Mina¹

Introduction

This paper seeks to review the validity of models that have credited metallurgy with an instrumental role in the transition from the “simple” Neolithic to the socially “complex” Bronze Age (hereafter BA). In the discussion that follows the traditional models that have associated metallurgy with the path towards civilisation are deconstructed and reviewed. Alternatively, it is proposed that approaching technology as social practice allows archaeologists to explore the unpredictable way in which production and social relationships were mutually shaped in prehistoric societies. It is argued that technological developments, and metallurgy in particular, do not follow an inevitable linear progression, but are the result of socially and culturally situated choices.² Furthermore, it is suggested that the organisation of production and technological sophistication are not restricted to particular forms of social organisation (“egalitarian” or “hierarchichal”), and thus it is not possible to equate the level of technology to pre-determined stages of complexity. Finally, it is proposed that we need to disentangle metallurgy from paradigms

that seek to validate hierarchical social organisation as a gauge of social complexity. Alternatively, it is more productive to explore metallurgy as a technological process that binds together people, artefacts, materials and products, and forms an integral part of historically-situated social and economic contexts.³

Technology and evolutionary theory

From its beginning archaeology sought to classify societies according to technological stages of advance,⁴ a principle still followed today. In the early 19th century, Danish archaeologists C. Thomsen⁵ and J. Worsaae⁶ introduced the tripartite system of Stone, Bronze and Iron Ages, and in 1865 Lubbock,⁷ a supporter of evolutionary theory, coined the terms *Palaeolithic* and *Neolithic*. The categorisation of societies according to “copper”, “bronze” and “iron” evolutionary stages, therefore, can be traced to the 19th century⁸ when Victorian scientists explained societies’ development as a progressive course towards civilisation, by analogy to Charles Darwin’s general hypothesis of natural evolution.⁹ In the models proposed by S. Morgan¹⁰ and F. Engels¹¹ technological advances are synchronised with the stages in their evolutionary ladder (Savagery, Barbarism and Civilisation), culminating with the industrial era in fully developed societies. With reference to metallurgy in particular, for Morgan and Engels the adoption of iron metallurgy marked a time when societies became highly organised and increasingly complex.¹² In archaeology, G. Childe, who was deeply influenced by Marxist ideas, saw metallurgy and craft specialisation as the impetus behind the *Urban Revolution*.¹³ In the 1960s, New Archaeology introduced the systems theory according to which different components, including metallurgical technology that developed through a series of rational and functional stages, contributed towards social complexity as a result of a unilineal process.¹⁴ At a time when positivism had gained ground, archaeometallurgy was hailed as a valid scientific field which held the key to

understanding early metallurgy.¹⁵ Consequently, archaeometallurgy developed into an autonomous subfield of archaeology and the laboratory analysis of metals became an end in itself.¹⁶ As a result, the study of metals became divorced from the discipline's theoretical concerns, disregarding issues concerning the associated context of their production and the technological choices of producers as socially constituted practices.¹⁷

The technological determinism that characterises evolutionary approaches defines humanness in relation to material technologies and is a principle that still remains relevant in archaeology today.¹⁸ As a result of technological determinism, it is assumed that material technologies correspond to particular forms of social organisation with the appropriate form of division of labour,¹⁹ and that it is possible for archaeologists to infer the organisation of production based on the technological products.²⁰ This correlation has led to the hypothesis that the more complex the technology is, and the more advanced the means are through which the natural world is controlled, the more civilised a society is.²¹ In particular, a causal relation is drawn between technology and social organisation by stressing the instrumental role of technological advances in facilitating the production and management of surplus, which is considered as a precondition for the establishment of elite groups and social inequalities.²² Conventionally social hierarchy, and the greater stability it ensured, is considered in archaeology as an indicator of social complexity, itself a remnant from the evolutionist tradition of the social sciences.²³ Recent approaches, however, now define social complexity as a combination of heterarchical and homoarchical principles which allows the integrated operation of local-level negotiable relationships in the pyramid of higher leadership.²⁴ Moreover, the projection of contemporary values on past technologies has served to validate the present, while the intentional decisions that shaped historically-situated societies

have been overlooked.²⁵ As a result of anachronistic ideas, women have been associated with nurturing and “domestic” technologies, none of which ultimately contribute significantly to the progress towards civilisation.²⁶ This axiom has further conflated technology with social hierarchy and gender inequality in the process leading towards civilisation.

Turning to Aegean archaeology, C. Renfrew’s influential *Emergence of Civilisation* (1972) associated the BA with the advent of complexity and thus validated Child’s view of Neolithic societies as unsophisticated.²⁷ Consequently, Aegean Neolithic culture has been traditionally approached in opposition to the civilised BA through contrasting performance in social and economic domains: domestic production vs. craft specialisation, rural vs. urban, egalitarian vs. stratified, close to nature vs. removed from nature.²⁸ Consistent with evolutionary principles, C. Renfrew and K. Branigan²⁹ interpreted Aegean metallurgy as an independent development³⁰ that advanced gradually,³¹ and as the stimulus for emerging social complexity through the key role it played in the systemic model.³² The development of metallurgical technology apparent in the 3rd millennium BC resulted from “man’s control over nature” and led to craft specialisation.³³ The culminating effects of metallurgy, felt especially in the Early Bronze Age (hereafter EBA) II, are best described by Renfrew as “*Metallschock*”³⁴ and by Branigan as “metallurgy explosion,”³⁵ both terms referring to the sudden reaction to the first major impact of metallurgy. The technological progress of metallurgy contributed to the transformation of the physical environment³⁶ and influenced other subsystems, such as warfare and trade, created new areas of specialisation, impacted on the division of labour,³⁷ and ultimately led to the accumulation of wealth, social hierarchy³⁸ and urbanisation,³⁹ phenomena equated with civilised societies. Despite the evolutionary tradition evident in Aegean prehistory, more recent interpretations⁴⁰ have questioned orthogenetic models, placed Aegean metallurgy in its cultural

context, and addressed questions regarding the social practices of production, consumption and deposition.

Technology as social practice

It has now been acknowledged that systems theory assumes that societies operate in a regulated way through predictable mechanisms that can explain functionally social phenomena, such as hierarchy. Similarly, unilineal evolutionary models, which also enforce an orderly picture of prehistoric societies, have been criticised for imposing an equally restricting view of society's development through a series of stages, and for failing to explain why certain societies do not progress through the evolutionary ladder despite undergoing significant transformations.⁴¹ Ultimately, systems theory and evolutionary models disregard archaeological data by failing to account for evidence that does not conform to preconceived stages of development.⁴² For example, metallurgy remained a secondary activity for at least a millennium on the Iberian Peninsula, having minimal impact on social organisation and culture.⁴³ In other societies, the economic focus on the production of utilitarian metal objects did not lead to centralised political authority, as in Thailand.⁴⁴ Orthogenetic models also fall short of explaining the interdependency between material and social transformations,⁴⁵ by failing to recognise that producers' engagement with the material world in past societies changed following the transformation of human social relationships and not the other way around.⁴⁶ The disproportionate emphasis placed on the material aspects of technologies also restricts archaeologists from exploring their cultural significance.⁴⁷ Moreover, conflating technological advances and social hierarchy with complexity discounts non-hierarchical societies as technologically sophisticated and culturally "advanced", or assumes that hierarchical societies are necessarily complex. As a result, the study of prehistoric technology is restricted to confirming societies' level of

civilisation, instead of exploring how it was involved in constructing social identities and people's views about their world in their given historical context.

Fundamental to understanding the role of metallurgy in prehistoric societies is that technology is socially constituted, and that it represents a dynamic social practice that cannot be reduced to the aspects of artefact production and use.⁴⁸ The idea proposed by M. Dobres that social transformations unfold through social practice as people, artefacts, materials and products are bound together in the technological process,⁴⁹ is particularly productive for shifting the focus from technological determinism to socially-informed interpretations. Approaching metallurgy as a social phenomenon allows archaeologists to address some of the questions central to technological practice, such as the organisation and control of labour and the negotiation of social identity.⁵⁰ Technological practice is not limited only to producing things or creating technical skill, but ultimately relates to people and social relations, instigates changes, generates personal and cultural knowledge and meaning, and shapes personal and group identities through the agents' daily engagement with the material world.⁵¹ As objects acquire meaning through socially constituted technological arenas, similarly, producers themselves become "social products" and establish their social position through the production process.⁵²

Metallurgy and transition in Aegean prehistory

A central idea in evolutionary models is that technology advances through successive stages, and metallurgy in particular has been responsible for the introduction of technological progress. This hypothesis assumes that early metallurgy brought about unprecedented innovations that revolutionised economy and marked the transition from the "simple" Neolithic to the "complex" BA. The emphasis placed on the transformative role of metallurgy is consistent with the principles of material

determinism which assumes that metals possessed superior qualities to “primitive” Neolithic materials. Does archaeological evidence, however, support the validity of such a statement? The archaeological record challenges the idea that metallurgy evolved through rational stages of technological advance; unpredictable phenomena are revealed that cannot be explained functionally in terms of metal objects’ patterns of employment and consumption on a practical or symbolic level.⁵³ Evidence suggests instead that metallurgy developed through exchanged ideas and knowledge that were locally adapted according to regional choices.⁵⁴ The “irrational” and non-linear development of metallurgy in prehistory can be illustrated through a series of examples. It is assumed, for example, that the use of native copper preceded the smelting of copper oxide and copper carbonate ores, later succeeded by the smelting of copper sulphide ores and alloying.⁵⁵ It has now been established that smelted copper did not have particular advantages over native copper, suggesting that native copper continued to be used for some time along with the smelting technique.⁵⁶ Moreover, evidence from Chalcolithic Varna and Nahal Mishmar in the Judean Desert for complex alloys and sophisticated casting technology (traditionally associated with the BA) contests the hypothesis for evolutionary development of metallurgy.⁵⁷ The intentionality of prehistoric alloying, which is often taken to indicate an advanced stage of metallurgy, has also been disputed on the basis that alloys may have resulted from the smelting of ores that are naturally rich in arsenic.⁵⁸

With reference to Aegean metallurgy, increasing evidence now indicates that we have hitherto underrated its presence in the Neolithic and exaggerated its concentration in the BA. It is becoming apparent that BA Aegean communities did not witness a technology previously unknown to them, nor can we justify perceived social complexity as a result of sudden technological innovations. The first metal objects from the Aegean come from Neolithic contexts, the earliest dating to the early 5th millennium

BC (Middle Neolithic) in Northern Greece.⁵⁹ Although the majority of metal objects have been recovered from Final Neolithic (FN) safe contexts,⁶⁰ more Late Neolithic (LN) pieces are unearthed at an increasing rate, including evidence from early LN Macedonia and the islands.⁶¹ It is even estimated that the use of metal objects in the Neolithic was probably far greater than what has already been detected.⁶² As Nakou has proposed, the lower number of metal objects recovered from the Neolithic may be explained through contrasting the earlier depositional practices of curation and ritual deposition, against regular deposition in accumulating quantities in the EBA.⁶³ Thus, the phenomenon termed as *Metallschock* may present a distorted picture of metal's importance in EBA society.⁶⁴

Evolutionary approaches have also assumed that Neolithic production was not only limited, but also unsophisticated as opposed to the technologically advanced BA. Archaeological evidence, however, reveals that a number of traits of BA metallurgy can in fact be traced to the Neolithic. For example, Aegean Neolithic metallurgy included not only copper, but also introduced gold from the LN onwards and silver towards the end of the FN.⁶⁵ EBA Aegean silver metallurgy should be considered, therefore, as a continuation of a Neolithic tradition, as indicated by evidence including the silver perforated discs and biconical silver bead known from the Early Cycladic cemetery of Louros Athalassou on Naxos, and the silver bowl from Amorgos.⁶⁶ Moreover, types of metal objects believed to have been BA innovations now can be traced in the Neolithic; the recovery of Neolithic tanged and riveted daggers suggests they foreshadowed later forms, once thought to be restricted to the EBA II.⁶⁷ In fact, a number of Neolithic metal forms continued to be used in the BA, including not only ornaments, but also tools, such as awls, needles, pins, tweezers, chisels, flat axes, hammer-axes, possible shaft-hole axes, spatulas and daggers.⁶⁸

Traditional models have also tended to exaggerate the impact

of metallurgy in Neolithic economy and production. It is now acknowledged that early copper and gold objects did not offer any advantages over other Neolithic materials, such as wood, bone, stone or ceramics employed in everyday activities.⁶⁹ The fact that the earliest metal objects known from Europe were ornaments would suggest that their novelty more likely related to their visual qualities that triggered a sensory appeal,⁷⁰ rather than their practical advantage. Moreover, stone tools continued to be used in Neolithic economic activities alongside early metal tools⁷¹ suggesting that the latter did not offer any real practical advantages.⁷² Finally, the skeuomorphism apparent between FN copper and stone flat axes confirms that in the minds of Neolithic people the use of both material forms may have in fact been interchangeable.⁷³

Let us now explore the validity of the hypothesis regarding metallurgy's instrumental role in introducing social complexity to the prehistoric Aegean (Fig. 6.1). Central to the evolutionary schemata and systems theory is the assumption that there is a causal relationship between technological progress and social transformations, and that the level of technological sophistication is a gauge for social complexity. This premise has led archaeologists to assume that the level of production and technological expertise corresponds to predetermined forms of social and economic organisation, effectively discounting Neolithic society as technologically sophisticated or complex. Does the archaeological evidence support this thesis? It is now recognised that current typologies of craft specialisation mask the observed variety of the archaeological record and often imply a strict linear evolution from simple to complex forms, which the data do not support.⁷⁴ It is possible, for instance, to detect in the LN a trend towards “de-specialisation” with evidence for a lesser degree of craftsmanship than in the earlier Neolithic, suggesting the introduction of some domestic production.⁷⁵ Moreover, explaining Neolithic production strictly through functional or economic

factors can lead to over-simplified conclusions, as it has now been established that specialists are not necessarily driven by economic motives.⁷⁶ Similarly, Neolithic practices reveal comparable divergence from economic functionalism; the exchange of Middle Neolithic (MN) pottery of equally high quality and craftsmanship between communities suggests that it related mainly with social position or social power, rather than economic gain.⁷⁷ The production of chipped stone industry and the procurement of exotic raw materials also entailed exchange, which would suggest that lithics production was not organised on the basis of functional necessity. Neolithic technological production, therefore, constituted culturally-specific choices that cannot be explained through practical criteria,⁷⁸ traditionally applied to contrast against BA economic practices.

One way we can overcome the restrictions posed by conventional criteria for recognising craft specialisation, and thus technological sophistication, is to broaden our classificatory criteria to account for Neolithic evidence. A useful definition proposed by K. Costin describes specialised production as “whenever there are fewer producers than consumers of a particular good.”⁷⁹ The Aegean archaeological record indicates that it is possible to recognise Neolithic specialised production in a variety of contexts.⁸⁰ Early Neolithic and MN lithic technology features characteristics of specialised activities, demonstrated by the methods of procurement at the sources, the production methods for exotic raw materials, the skill and knowledge required for seafaring and/or quarrying, the length of apprenticeship to acquire the skills, the high output per individual and the absence of errors.⁸¹ MN and LN pottery was also most probably produced by specialist potters, as suggested by the high quality of pots themselves, the level of skill, technical knowledge and experience required by the potters.⁸² The transition to the BA, therefore, did not introduce an unprecedented level of specialisation to the technologically “naive” Neolithic society. The

earliest stages of the mainland EBA in fact present an extension of the Neolithic way of life, distinguished mainly by the variation in ceramic styles.⁸³ Moreover, despite Neolithic communities' familiarity with metallurgy, the transition to the BA did not lead to the inevitable wholesale adoption of metals. For example, no metal objects are known from Early Helladic I assemblages and only a few have been recovered from Early Cycladic I assemblages.⁸⁴ Specialisation, therefore, already existed in the Neolithic and the evidence implies qualitative rather than fundamental changes in the economic organisation of the two cultures, as metals and metallurgists replaced pottery and potters as the new “*art du feu*”.⁸⁵

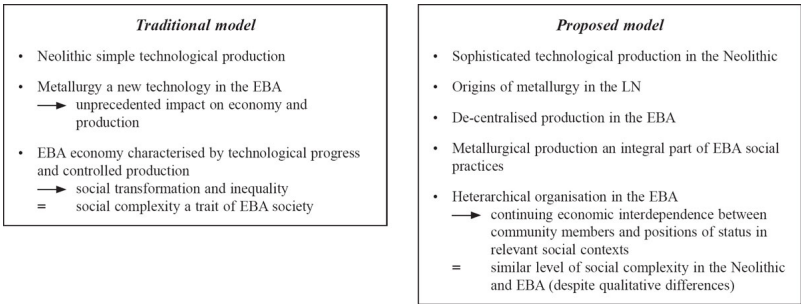


Figure 6.1. The Neolithic-EBA transition explained through a model that favours technological determinism (left) against a model that considers technology as social practice (right).

Another point that needs to be addressed is that we need to disentangle metallurgy from models that equate social hierarchy with social complexity. A central assumption in orthogenetic models is that (a) technological progress leads to increasing social inequalities, and (b) that egalitarian and self-sufficient Neolithic society was consequently replaced in the EBA by hierarchical organisation and economic dependency, both indications of social complexity. It has recently become clear, however, that it is possible to recognise degrees of complexity and interdependence in the Neolithic.⁸⁶ Traits, typically reserved for the BA, such as

social competition, agricultural intensification, craft specialisation, long-distance exchange and practices of conspicuous consumption, also characterise the Neolithic society.⁸⁷ Evidence from LN Makriyalos in Macedonia indicates conspicuous consumption practices, as demonstrated by the high concentration of animal bones, figurines, but also a whole range of ceramic assemblages including vessels for storing, cooking, serving and consuming food or drink.⁸⁸ Though not a common phenomenon, formalised commensality in the Neolithic served to negotiate tensions within the local community and also between communities on a regional level.⁸⁹ The picture which traditionally portrays a peaceful, egalitarian Neolithic has also been contested. Architectural and spatial evidence indicates unequal accumulation of resources in the later Neolithic and the emergence of elite households.⁹⁰ At a time of crisis, therefore, competition over surplus constituted an arena of hostility between households.⁹¹ Moreover, it is possible to envisage that Neolithic life also included violence and warfare, as suggested by the concurrence in Thessaly of stone walls with baffle gates, ditches with V-shaped sections, fortifications and potential weapons such as copper knives, stone axes, arrowheads, sling bullets and mace heads.⁹² Probable causes of hostility between Neolithic communities may include competition over territory, water and other resources, or grazing rights.⁹³ Traditional models, therefore, have overlooked traits in Neolithic society conventionally reserved for the BA, while characteristics of the BA have been exaggerated to validate the evolutionary progress towards complexity.

Turning to the EBA society, social relationships, which were heterarchical in nature, did not differ greatly from the underpinning values and norms that characterised Neolithic communities. Heterarchical societies are characterised by a high degree of social mobility,⁹⁴ inclusive power structures and adaptable values.⁹⁵ In evolutionary models, the technological progress of the BA is measured by the level of centrally controlled

production that could facilitate the accumulation of wealth and ultimately lead to the emergence of social inequalities.⁹⁶ Conversely, decentralised craft-specialisation is one of the signs of heterarchical organisation,⁹⁷ suggesting interdependence between individuals and community groups and dissemination of technical knowledge. Let us now explore whether the BA evidence does indicate centralised production that may have led to social transformations. Craft production on EBA Crete points to heterarchical social organisation. Metal objects from the Mesara indicate diffusion of manufacturing techniques,⁹⁸ as each site followed diverse methods of metalworking production with varying degrees of competence.⁹⁹ There is also no obvious standardisation in manufacturing techniques of arsenic bronzes,¹⁰⁰ suggesting that metal objects were generally the products of occasional metalworkers.¹⁰¹ Also, pottery was not centrally produced or distributed,¹⁰² and potters probably worked full-time on occasions of production, but not all year round as suggested by evidence at Phaistos.¹⁰³ Evidence for household-level production (obsidian production near Tripiti Hill, Mallia, Knossos¹⁰⁴ and at the Spanoudakis plot¹⁰⁵) also point to non-centralised organisation of production. Decentralised craft-specialisation is also attested at sites outside the Mesara, with evidence for metal-working at Mallia, Knossos,¹⁰⁶ Poros and Ayia Photia,¹⁰⁷ Mochlos for the production of stone vases, gold, silver and lead objects,¹⁰⁸ and the Mesara area for the production of ivory objects.¹⁰⁹ The interdependence of sites on an economic level impacted on the relationships of community members by providing opportunities for the formation of supra-site alliances, while production at household level allowed community members the autonomy to negotiate their status according to heterarchical norms through the technological practice.¹¹⁰

The centralised practices which underpin technological sophistication and have been credited to the expert BA metallurgist by evolutionary models can be challenged further;

Catapotis has disputed the presumed seclusion of metalworking activities from settlements as an indication for the control of metal production by emerging elites¹¹¹ by noting the variability evident in the organisation of copper production and level of technical skill.¹¹² For example, even within the same region of the Mesara, analysis of metal objects suggests that each site followed diverse methods of metalworking production with varying degrees of competence.¹¹³ Different strategies of metalworking are also apparent on the north coast of Crete: at Poros and Ayia Photia already processed raw material was melted and/or alloyed, whereas at Kephala Petras smelting activities of unprocessed ores took place.¹¹⁴ The variability in smelting techniques attested at Chrysokamino and Kephala Petras on Crete¹¹⁵ is also apparent in the Cyclades, sometimes on the same island¹¹⁶ or even in the same settlement.¹¹⁷ Evidence from the Southern Aegean also indicates inconsistency in the size of slag deposits that may point to small and large production centres, and variability in the location of copper-smelting sites with regards to settlements.¹¹⁸ The diversity demonstrated by EBA metallurgy, therefore, calls into question the presumed height of technological sophistication and level of metallurgical production that has been used to justify the emergence of social complexity.

The role played by the (essentially male) metallurgist in the progress towards technological advance in the transition from the Neolithic to the Bronze Age, as implied by evolutionary models, also needs to be reassessed. As already indicated by craft specialisation in the Neolithic and by the heterarchical organisation of metalworking, craft production in both cultures may have been structured in a variety of forms, and it is unlikely that the first metalworkers placed unprecedented stress on the community.¹¹⁹ It is now acknowledged that evolutionary models have overstated the role of the metallurgist as leading technological and social transformations. It has been established recently that metalworking cannot have been the endeavour of a

single man; in fact it involved and consisted of a range of activities, such as prospecting, extraction, producing firewood and charcoal, processing, transport, shaping and decorating the objects.¹²⁰ Unless there is evidence to indisputably argue that these activities were restricted only to men, the collective undertaking of metalworking would impinge on a range of economic domains and would relate or overlap with other everyday practices that were not gender exclusive.¹²¹

Even if we assume that a community was served by a part-time metalworker, then other members also participated in the process through their labour and joint efforts in producing metal objects.¹²² Evidence indicating the integration of metalworking within the living environment also comes from the Aegean, which suggests that community members who participated in metal processing and metalworking formed an integral part of economic life. The fact that metalworking was not carried out in isolation from other activities already in the Neolithic is suggested by evidence for smelted metal at the settlements of Sesklo, Dimini and Sitagroi.¹²³ Moreover, copper ores in the FN and EBA Southern Aegean were smelted not far from or inside actual living areas.¹²⁴ Evidence for raw material worked and cast at the site¹²⁵ indicates that metalworking continued to comprise part of the socioeconomic matrix of EBA life, as suggested by data from late EM levels at the settlement of Poros Katsambas that included crucibles, copper artefacts, slag, moulds and *tuyères*.¹²⁶ The nearby settlement of Ayia Photia-Kouphota has also produced traces of metalworking activities in the EM period.¹²⁷ The lack of obvious standardisation in manufacturing techniques of arsenic bronzes¹²⁸ further suggests that metal objects were generally the products of occasional metalworkers,¹²⁹ who were not thus divorced from the social and economic fabric of prehistoric communities. This picture is akin to Neolithic specialists who supplemented their living by exchange for food or other craft products, as suggested by the asymmetrical exchange of local stones in return for

Conclusion

Evolutionary approaches to explaining change fail to account for evidence that does not fit preconceived stages of advance. It is possible to recognise complexity in Neolithic societies, a trait which was previously dismissed through comparison with a “sophisticated” BA. At the same time, it is clear that earlier interpretations have exaggerated traits of Bronze Age societies as a way to validate a unilinear evolution of societies. Moreover, the technological determinism by which prehistoric societies have been evaluated has reduced humanness to mere stages of material production, and has overlooked the elaborate ways in which social identities were constructed and negotiated. In light of evidence that illustrates the composite character of technology as social practice, it is simplistic to assume that the adoption of metallurgy can explain the loss of presumed Neolithic self-sufficiency, or that it did not contribute along with other parameters to the Neolithic-BA transition.¹³¹ As M. Dobres has postulated, the transformation of social relationships paved the way for changes in producers’ engagement with the material world, and not the other way around.¹³² The comparison between the later Neolithic and EBA society, however, has not demonstrated enough changes to justify the presumed shift from simple to complex social organisation, or from technological naivety to sophistication in a way that would dramatically alter social relationships. It may in fact be more appropriate to consider metallurgy as part of other production domains that continued from the Neolithic, as in the case of pottery, which involved the mixing and shaping of raw materials to new forms that perpetually expressed group and individual identities.¹³³

Shifting the focus from technological determinism to understanding production as a socially constituted practice, allows us to appreciate the relative degrees of complexity in Neolithic

and BA societies. Moreover, it is apparent that it is not possible to predict or presume social complexity by assuming a neat correspondence between the level of technological sophistication and prehistoric societies. It is proposed alternatively that placing prehistoric technology in its cultural context can elucidate how social relationships impinged on technological production and how metal objects may have formed part of identity construction and negotiation processes.¹³⁴ Although it has not been possible to discuss adequately in the present article, even the notion that social inequality equals social complexity also needs to be questioned. In fact, the phenomenon of hierarchy may have operated along heterarchical or homoarchival principles which are a better gauge by which to measure social complexity or assess how social groups relate to each other.¹³⁵ The largely heterarchical context that characterised Neolithic and BA social organisation, therefore, suggests that the engagement of producers with the material world did not differ greatly between the two periods. Against evolutionary models that have credited metallurgy with unprecedented social and economic changes, the evidence indicates that it did not alter technological practice significantly, nor did it disrupt the dynamics between people and their connection with the material world. The paradigm of the Aegean suggests that it may even be time to consider whether classifying cultures according to material technologies alone is still the best way to serve the needs of archaeological research.

Notes

- 1 I would like to thank the editors and anonymous reviewers for their constructive comments.
- 2 Doonan and Day 2007, 3.
- 3 Dobres 2000, 127.
- 4 Dobres 2000, 16.
- 5 Thomsen 1836.
- 6 Worsaae 1843.
- 7 Lubbock 1865.

- 8 Ottaway and Roberts 2008, 193; Roberts 2008, 28.
- 9 Scott and Marshall 2005.
- 10 Morgan 1964 [1877].
- 11 Engels 1972 [1884].
- 12 Morgan 1964 [1877], 437.
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- 17 Doonan and Day 2007, 3.
- 18 Dobres 2000, 33.
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- 20 Dobres 2000, 39.
- 21 Dobres 2000, 33.
- 22 Dobres 2000, 39.
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- 24 Barry 2004; Barry 2005; Bondarenko 2007, 64.
- 25 Dobres 2000, 46.
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- 27 Tomkins 2004, 39.
- 28 Tomkins 2004, 39–40.
- 29 Renfrew 1972; Branigan 1974.
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- 31 Renfrew 1972, 308.
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- 35 Branigan 1974, 141.
- 36 Renfrew 1972, 361.
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- 38 Renfrew 1972, 308.
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- 42 Crumley 1995, 4.
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- 47 Dobres 2000, 125.
- 48 Dobres 2000, 96.
- 49 Dobres 2000, 127.
- 50 For the role of metal objects of personal use in the Chalcolithic–EBA transition on Cyprus see Mina 2014.
- 51 Dobres 2000, 125.
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- 53 Sherratt 2007, 246.
- 54 Ottaway and Roberts 2008, 214.
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- 56 Ottaway and Roberts 2008, 206.
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- 84 Zachos 2007, 181.
- 85 Perlès and Vitelli 1999, 102, 105.
- 86 Nakou 1995, 19–20.
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- 88 Pappa *et al.* 2004, 19, 24.
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- 91 Halstead 1989; Halstead 1999.
- 92 Runnels *et al.* 2009, 189.
- 93 Runnels *et al.* 2009, 190.
- 94 Bondarenko 2007, 69; Crumley 2005, 44.
- 95 Crumley 2005, 44.
- 96 Branigan 1974, 141, 142, 146; Renfrew 1972, 308.
- 97 *cf.* White 1995.
- 98 Tselios 2009, 235.
- 99 Tselios 2009, 237.
- 100 Tselios 2009, 235–6.
- 101 Tselios 2009, 235–6.
- 102 Whitelaw 2004, 236.
- 103 Todaro 2009, 348.
- 104 Dimopoulou 1997 (who cites van Effenterre and van Effenterre 1969, 85–6 and Warren 1972, 392).
- 105 Dimopoulou 1997.
- 106 Stos-Gale 1993.
- 107 Day *et al.* 1998.
- 108 Branigan 1991.
- 109 Krzyszkowska 1983.
- 110 Mina 2015.
- 111 Broodbank 1993; Nakou 1995.
- 112 Catapotis 2007, 219.
- 113 Tselios 2009, 237.
- 114 Papadatos 2007, 164–5.
- 115 Catapotis *et al.* 2011, 75.
- 116 Bassiakos and Philaniotou 2007.

- 117 Georgakopoulou 2007.
- 118 Catapotis 2007, 211.
- 119 Nakou 1995, 19.
- 120 Ottaway and Roberts 2008, 215; Sørensen 1996, 48.
- 121 Sørensen 1996, 48.
- 122 Ottaway and Roberts 2008, 215.
- 123 Nakou 1995, 6.
- 124 Catapotis 2007, 215–16; Coleman 1977, 113; Papadatos 2007.
- 125 Dimopoulou 2012, 136.
- 126 Dimopoulou 1997; Doonan et al. 2007.
- 127 Tsipopoulou 2007.
- 128 Tselios 2009, 235–6.
- 129 Tselios 2009, 235–6.
- 130 Perlès and Vitelli 1999, 100.
- 131 Nakou 1995, 20.
- 132 Dobres 2000, 227.
- 133 Doonan and Day 2007, 13.
- 134 See Mina 2014.
- 135 Mina 2015.

Part II

The Balkans

Settlement pattern changes during the Central Balkans Copper Age

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Milanović¹*

Introduction

Three case studies are presented in this paper, with the goal to outline some basic characteristics and changes in settlement patterns during three different prehistoric periods – from the Late Neolithic until the Late Eneolithic (in terms of absolute chronology: 5400/5300–4600/4500, 4600/4500–3900/3800 and 3200–2800).² The paper is organised into three sections: the first section follows these patterns in Vinča, the second in Bubanj-Hum I, and the third in Late Eneolithic Coțofeni-Kostolac culture.³ Emphasis is placed on the spatial distribution of settlements in different regions of the Central Balkans, their topographic placement and regional characteristics.⁴

Settlements of the Vinča culture in Pomoravlje, Šumadija and Eastern Serbia

Examination so far of Vinča culture settlements has shown the existence of a nucleated settlement pattern and complex social organisation.⁵ Until recently, this research did not get enough attention, except in several publications referenced below.⁶ The

areas chosen for the case study focused on the Vinča culture settlement pattern are the banks of the Velika, Zapadna and Južna Morava rivers, and regions of Šumadija and Eastern Serbia (the Mlava river valley, the Iron Gorge and its hinterlands).

The distribution of surface finds and the complexity of material culture have shown that the largest Vinča settlements existed in Šumadija and the valleys of the Danube, Sava, Mlava, Velika and Južna Morava rivers, the areas which seem to have had particular importance for prehistoric populations. These locations were chosen because of their fertile soils, mineral ores, and an environment with a high diversity of plants and animals (Vinča, Selevac, Pločnik, Belovode, the settlements in middle part of the Velika Morava valley).⁷ In contrast to densely distributed sites in the river valleys of Central Serbia and Pomoravlje, the low mountain ranges of Western, Central and South-Eastern Serbia are less investigated, and seem to have been sparsely occupied, but with sites nonetheless present in the hinterlands of Zapadna Morava, Južna Morava, Velika Morava and Nišava valleys, and in the Iron Gorge (Fig. 7.1).⁸

Most of the Vinča sites (130) are situated in parts of Southern, Central and Western Serbia (Pomoravlje and Šumadija) (Fig. 7.2a).⁹ Analysis of settlement patterns in the lower part of the Južna Morava basin (the Aleksinac basin) has shown a preference towards slope locations in the contact zone of two or more relief types, especially fluvial and deluvio-proluvial deposits, alluvial and other lighter (eutric cambisols), and heavier soil types (vertisols).¹⁰ Also, we can see a tendency for settling in close proximity to stream and river confluences, places where the largest alluvial sedimentation occurs. A common characteristic for all settlements is a forest pedologic cover that shows people's orientation towards the exploitation of forest resources, and agricultural exploitation of brown forest soils (today all of these sites are located in a mixed oak forest belt, up to 300 masl).

In the Pomoravlje and Šumadija regions, Vinča settlements of

different size were also situated on similar slope locations (51 sites), some of them ranging up to a couple of dozens of hectares in size (e.g. Pavlovac, Pločnik, Vitkovo, Drenovac, Selevac, Dizaljka, Medvednjak *etc.*) (Fig. 7.2b). Topographically, sites are usually located on gentle slopes (sometimes they lie partly on alluvial plains) (five sites), mostly oriented towards the south to take advantage of maximum insolation and hydrological and pedological characteristics of the terrain. Characteristic for these locations is the proximity to fertile soils used for agriculture and to favourable environments for large-scale animal husbandry, and in some areas, the proximity of other resources (e.g. forest, salt sources, rock quarries *etc.*). Smaller sites are equally distributed in similar ecosystems (at the contact of fluvial and other geomorphological formations), at approximately the same distances from each other, which implies communication along long or short river flows.¹¹ Settlements are rarely positioned on the higher plateaus of river terraces (Fafos II) or on broader alluvial plains (Čair, Selište, Orašje-Dubravica) (eight sites).¹² Lowland settlements (19 sites) were formed on flat or slightly elevated terrain that is rich in fertile alluvial soil types (e.g. Leskovac and Niš basins).¹³ Although locations such as these could be periodically flooded,¹⁴ it seems that they were often favoured in the Vinča period. The high underground water table and high level of soil moisture guaranteed soil fertility, vast pastures (with the possibility for year-round herding) and plentiful floral and faunal resources, suggesting the strong agricultural and husbandry component of settlements at these locations, along with hunting and gathering as additional activities (mixed economy).

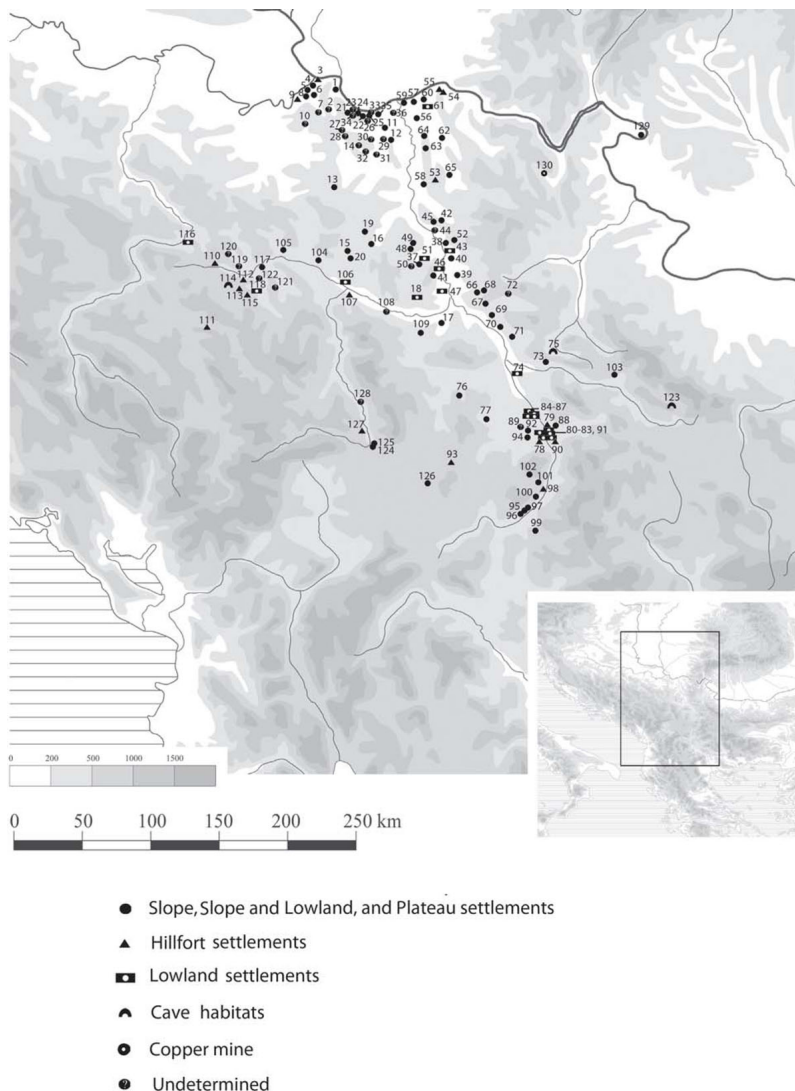


Figure 7.1. Distribution map of the Vinča settlements. 1. Belo Brdo, Vinča; 2. Šuplja Stena, Vrčin; 3. Gornji grad, Beograd; 4. Senjak, Beograd; 5. Čukarica, Beograd; 6. Usek-Banjica, Beograd; 7. Čaršija, Ripanj; 8. Ledine, Žarkovo, Beograd; 9. Sremački rt, Železnik, Beograd; 10. Kremenite njive, Barajevo; 11. Staro Selo, Selevac; 12. Medvednjak, Grčac; 13. Dizaljka, Lipovac; 14. Jablanica, Međuluzje; 15. Barice-Gruža, Grivac; 16. Divostin; 17. Lazarica, Kruševac; 18.

Šljivik, Stragari; 19. Rajac, Donje Grbice; 20. Brdo, Kusovac; 21. Zaklopača; 22. Dubočaj, Grocka; 23. Periferija, Grocka; 24. Agino Brdo, Grocka; 25. Karaula, Brestovik; 26. Jaliya, Brestovik; 27. Mali Drum, Veliki Popović; 28. Madjarsko groblje, Veliki Popović; 29. Krnjevski put, Grčac; 30. Ive, Kusadak; 31. Šiljakovac, Ratari; 32. Kućerine, Jagnjilo; 33. Mikulje, Brestovik; 34. Jugovo, Grocka; 35. Goli Breg, Brestovik; 36. Lipe, Smederevo; 37. Gradina, Lođika; 38. Stublina, Supska; 39. Slatina, Drenovac; 40. Motel Slatina, Paraćin; 41. Livade i Sastavci, Svojnovo; 42. Buljička bara, Veliki Popović; 43. Briketnica, Čuprija; 44. Ključ, Duboka; 45. Čair, Dobre Vode; 46. An, Svojnovo; 47. Selište, Varvarin; 48. Crkvine, Lozovik; 49. Jaruge, Lozovik; 50. Ciganski potok, Tečić; 51. Ključevi, Batal njive, Medojevac; 52. Kraljevo Polje, Ivankovac; 53. Zbegovište-Selište, Oreškovića; 54. Ladne Vode, Rečica; 55. Hrastova Humka, Kličevac; 56. Minine Vode, Požarevac; 57. Čair, Kostolac; 58. Konjušica, Viteževo; 59. Orašje, Dubravica; 60. Selište, Kostolac; 61. Lugovi, Drmno; 62. Staričino, Kobilje; 63. Centar sela, Simićevo; 64. Poljana, Požarevac; 65. Belovode, Veliko Laole; 66. Šetka, Ražanj; 67. Crnokalačka bara, Rujište; 68. Lukički breg, Vitoševac; 69. Bradarac; 70. Drugo aleksinačko okno, Aleksinac; 71. Neine njive, Katun; 72. Međukamenje, Vrmdža; 73. Radačje, Malča; 74. Mustajbegovo polje, Pasipoljana; 75. Golema đuvka, Prekonoška pećina; 76. Pločnik, Prokuplje; 77. Kremen, Mačina; 78. Progon, Mala Grabovnica; 79. Gradac, Zlokućani; 80. Izvor, Bobište; 81. Putište, Bobište; 82. Sastanci, Bobište; 83. Selište, Bratmilovce; 84. Kućište, Čekmin; 85. Sastanci, Čekmin; 86. Selište, Čekmin; 87. Ševarike, Čekmin; 88. Prkljivica, Gornja Slatina; 89. Staro Selo, Milanovo; 90. Vranja noga, Gornje Guberevce; 91. Božja bara, Mrštane; 92. Na kamen, Priboj; 93. Redžov vis, Tulare; 94. Selište, Vinarce; 95. Čukar, Pavlovac; 96. Gumnište, Pavlovac; 97. Kovačke njive, Pavlovac; 98. Dva brata, Ranutovac; 99. Kačamačke njive-Slatina, Klinovac; 100. Rašina okućnica, Vranje; 101. Goleme livade, Tesovište; 102. Semensko drvo, Golemo Selo; 103. Stranje, Osmakova; 104. Poljčine, Ostra; 105. Trsine, Gornja Gorevnica; 106. Okruglica, Vitanovac; 107. Divlje

Polje, Ratina; 108. Ladjarište, Vrnjci; 109. Vitkovo, Aleksandrovac; 110. Velika Gradina, Stapari; 111. Plosna stijena, Radoinja; 112. Šengoljska gradina, Rasna; 113. Kuline, Roge; 114. Potpečka pećina; 115. Vraneška stena, Radobuđa; 116. Kremenilo, Višesava; 117. Vinogradi, Riđage; 118. Klještine, Svračkovo; 119. Kaljevina, Vranjani; 120. Naplav, Karan; 121. Breg, Guča; 122. Velike livade, Krstac; 123. Petrlaška pećina; 124. Fafos I; 125. Fafos II; 126. Predionica, Priština; 127. Valački krš, Valač; 128. Karagač, Žitkovac; 129. Zbradila, Korbovo; 130. Rudna Glava, Majdanpek.

In addition, there are some sites that do not follow these patterns, indicating their special function. Such sites are located in caves (three sites), mining shafts (one site), and strategically important places that visually dominate their surroundings (hillfort settlements).¹⁵ Hillfort settlements (17 sites) are positioned on difficult to reach plateaus of low mountain ranges and hills. In addition to being naturally protected they often have added fortification structures.¹⁶ Such special sites may be associated with defensive strategies, mineral and ore prospection and exploitation. Their inhabitants mainly subsisted on herding, hunting and gathering, while farming was often less important or was not practiced at all (e.g. the sites of Rudna Glava in Eastern Serbia, Šuplja Stena on the Avala Mountain, several sites in Western Serbia, cave sites, etc.).¹⁷

During the Vinča C–D phases, side by side with large, long lasting settlements (Pavlovac, Pločnik, Vitkovo, Crnokalačka Bara, Drenovac, Medvednjak, Grivac, Vinča, etc.), there was an apparent tendency towards establishing new settlements. Population densities shift between different regions of the central Balkans.¹⁸ During these phases we can observe the rise of smaller sites with just one occupation level, as well as hillfort sites.¹⁹

Numerous sites of the Vinča culture have well developed horizontal stratigraphy, which has to do with a tradition of abandonment and the foundation of new settlements in proximity to the old. The shifting in settlement position is documented at

Selevac,²⁰ Fafos (I and II),²¹ Pavlovac,²² Parța (I and II)²³ and other sites. The sites that particularly stand out are those with a large number of settlement horizons that are vertically superimposed (e.g. Vinča and Supska).²⁴ Such occupational characteristics, manifested in the form of tells, point to the special place that these kinds of settlements had for Vinča society.

In settlement distribution across the landscape displays a growing tendency of settling in the fertile river valleys and rolling forested hills of Central and Southern Serbia. The same areas were already settled during the previous period (Starčevo culture), and some show continuity of settlement in the same positions.²⁵ On the other hand, remains of Early Eneolithic (Bubanj-Hum I) dwelling horizons above those of the Late Neolithic were not encountered at any location. In general, both horizons together were registered at a considerably small number of sites (this is seen only at the site of Gradac in Zlokućane), although the similarities between material culture often prohibit their exact attribution to Late Neolithic or Early Eneolithic (compare [Figs 7.1](#) and [7.3](#)). The study of the Late Neolithic settlement pattern points to a complex system of settlements often situated in the contact zone between two or more ecological niches, with the existence of large, long-lasting settlements serving as regional central places. This picture becomes more complex, since apart from the nucleated settlement pattern, settlements also exist that differ from that pattern, either because they exploit different resources (which points to different social and economic activities), occupy important strategic locations and command visual control over the landscape, or organise dwelling space in a different manner (vertical instead of the usual horizontal relocation of settlements). On the other hand, the dynamics of abandonment and formation of settlements at the same place, as well as founding settlements on new spots, shows that a considerable degree of residential mobility (of individuals, groups or the entire population of a settlement) was quite common in Vinča society.

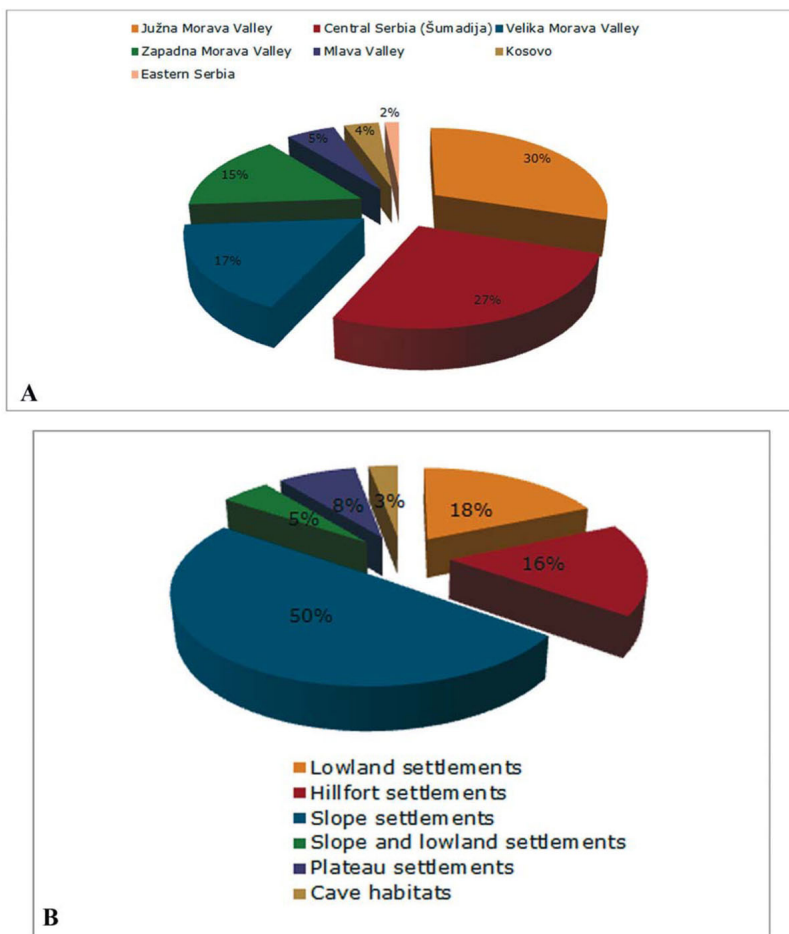


Figure 7.2. a. Regional distribution of the Vinča settlements; b. Topography of the Vinča settlements.

Settlements of the Bubanj-Hum I (Bubanj-Sălcuța-Krivodol) culture in Serbia

From the middle of the 5th until approximately the beginning of the 4th millennium BC, after the disintegration of the Vinča culture, the Bubanj-Hum I culture developed in the area of Timočka Krajina and in the Južna Morava Basin, as well as in the Južna and Zapadna Morava Rivers contact zone (Fig. 7.3). This archaeological culture was defined during the fifties, and soon

after it was recognised as part of the large Balkan cultural complex of Bubanj-Sălcuța-Krivodol, named after its main sites in Serbia, Romania and Bulgaria.²⁶ The ornamentation style and the typology of the pottery that can be recognised as belonging to this culture have been found in settlements placed partially in the Zapadna Morava Valley (Ostra, Višesava and Rasna),²⁷ in the Velika Morava Basin (Supska and Panjevački rit),²⁸ but also in the Kolubara Basin (Kalenić), which is, for now, the northernmost find of this culture.²⁹ Unlike during the late Vinča phase, when settlements were placed mostly on larger river terraces, with multi-room houses organised in rows, the Bubanj-Hum I culture settlements were considerably smaller with apparently more modest residential architecture.³⁰ Hillfort settlements were more numerous in this period, built on naturally fortified hills near main communications, while the number of lowland settlements is also much higher (Bubanj, Škodрино Polje).

More than 50 Bubanj-Hum I settlements have been found so far in Serbia, of which 17 are hillfort settlements placed on dominant and hardly accessible plateaus, one is a cave site, 10 are located on high plateaus or gentle slopes near rivers, 21 are on larger river terraces (lowland settlements), and five settlements are not topographically defined because their exact position could not be precisely located (Fig. 7.4a).

Sites containing remains of settlements from the preceding Vinča and Early Eneolithic culture (Bubanj-Hum I) are exceptionally rare (less than 2% of cases), compared to a large number of Vinča sites in Serbia, while in over 50% of the cases, the sites of Bubanj-Hum I culture contained remains of settlements from Late Eneolithic above them, especially of the Coțofeni-Kostolac culture. Such a topographic or stratigraphic situation shows that the Early Eneolithic communities found Late Neolithic settlement positions inadequate, while on the other hand, the Early and Late Eneolithic communities had quite similar criteria for choosing settlement positions. This can point to a similar

economic structure of the Eneolithic societies in these regions, standing in contrast to the Neolithic. One of the possible causes initiating changes in the Eneolithic settlement pattern was intense climate change, happening exactly during this period.³¹

The highest density of settlements is detected in Timočka Krajina (Eastern Serbia) and the Južna Morava basin (South-Eastern Serbia and Kosovo), comprising about 80% of the total settlements known in Serbia. The settlements are usually grouped in broader zones near the confluences of substantial rivers (Timok and Danube, Svrljiški Timok and Trgoviški Timok, Nišava and Južna Morava, Južna Morava and Zapadna Morava), and are usually followed by one or more hillfort settlements. It is assumed that there was a pattern of settlement foundation in which one lowland settlement “follows” one or more hillfort settlements. Hillfort settlements were usually placed in strategically important positions, such as gorge entrances or locations that enabled visual control over the landscape.

According to the great number of copper tools, slag, and metallurgical air nozzles (*tuyères*) and pottery used for smelting ore found at these sites, it is apparent that copper processing was very well known, especially at sites in Eastern Serbia situated in ore-rich regions (Zlatska Pećina, Kmpije).

Analysis of faunal osteological remains from pits from the Bubanj site and from the late Neolithic site of Vitkovo, and especially the analysis of mortality profiles, has shown that domesticated animals at Bubanj (from Eneolithic layers and structures) were not only used for meat but for other purposes as well (e.g. traction, milk), unlike those at Vitkovo,³² which shows changes in the economy of these Eneolithic societies that favours the *Secondary Products Revolution* theory.³³ Also, a rise in the percentage of cattle and the diminished presence of domesticated pig remains was observed as well. This kind of economy was not equally represented in all of the settlements, because settlements with a predominantly agricultural economic strategy existed at the

same time as those focused on animal husbandry.³⁴

The data show that the economic orientation of Early Eneolithic populations was versatile, which surely had an impact on the choice of settlement location. Location choice was also affected by other factors, such as potential for settlement defense. Hence, during the Bubanj-Hum I period settlement positioning followed an organised system, especially in some regions, based on a well-planned micro- and macro regional defensive strategy, which also took into account local resources as well as communications with other regions.

Apart from Serbia, settlements of this group exist in Eastern Albania (Maliq),³⁵ Northern Greece³⁶ and FYROM, where this culture (especially in Pelagonia) is defined as Šuplevec-Bakarno Gumno.³⁷ Distribution of settlements (Fig. 7.4b) shows a more intensive expansion of this culture along the north–south rather than east–west direction, where the main communication routes were the Timok, Beli Timok, Svrljiški Timok, Južna Morava, Pčinja and Vardar valleys. The vast territory covered by this cultural complex, from Oltenia and North-Western Bulgaria in the north to Albania and Northern Greece in the south, and a simpler organisation and smaller settlement size compared to the previous Vinča culture, as well as the large number of hillfort sites, points to possible population movements in the Central Balkans during the Early Eneolithic, which continued, although less intensely, in later periods.

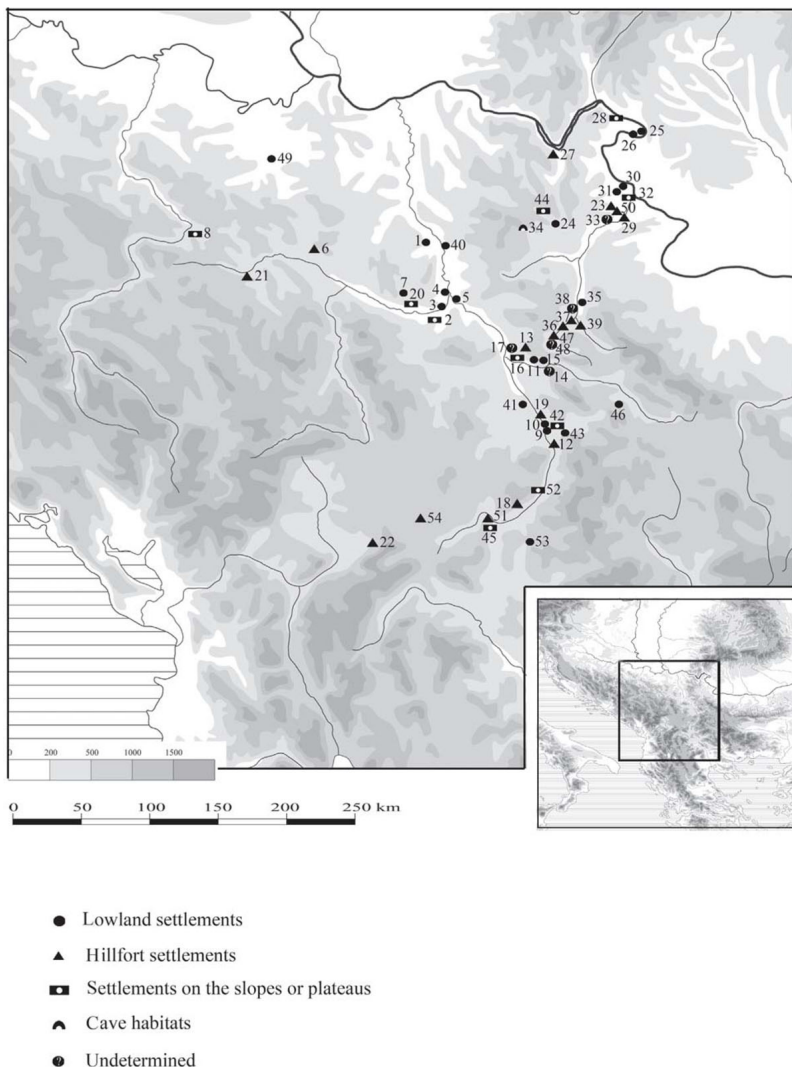


Figure 7.3. Distribution map of the Bubanj-Hum I settlements: 1. Panjevački rit, Jagodina; 2. Lazarica, Kruševac; 3. Jazbine, Makrešani; 4. Bedem, Maskare; 5. Ciglarska peć, Stalać; 6. Sokolica, Ostra; 7. Blagotin, Poljna; 8. Jovin breg, Višesava; 9. Sastanci, Bobište; 10. Donje polje, Bratmilovac; 11. Čardak, Donja Vrežina; 12. Kale, Grdelica; 13. Velika humska čuka, Hum; 14. Prosek, Jelašnica; 15. Donje Branište, Kovanluk or Novosel; 16. Bubanj, Novo Selo; 17. Ciganski ključ or Selište, Trupale; 18. Antin čukar, Vranje; 19.

Gradac, Zlokućani; 20. Reka, Stragari; 21. Šengoljska gradina, Rasna; 22. Hisar, Suva Reka; 23. Mokranjske stene - Potkapina and Kamenolom, Mokranje; 24. Kmpije, Bor; 25. Zbradila-Fund, Korbovo; 26. Školska gradina, Korbovo; 27. Veliki gradac, Donji Milanovac; 28. Brodoimpeks, Kladovo; 29. Vrkalj-Četaće, Kovilovo; 30. Ideće, Prahovo; 31. Fabrika superfosfata, Prahovo; 32. Greda iznad reke, Srbovo; 33. Tamnič; 34. Zlotska pećina, Zlot; 35. Škodrinu polje, Ravna; 36. Bolvan, Rgošte; 37. Čuka, Rgošte; 38. Kaličina; 39. Baranica, Trgovište; 40. Stublina, Supska; 41. Čekmin; 42. Donja Slatina; 43. Iza hotela Grozd, Vlasotince; 44. Krivelj; 45. Bare, Lučane; 46. Babušnica; 47. Varoš, Svrlijig; 48. Grbavče; 49. Livade, Kalenić; 50. Smedovac; 51. Gradište, Končulj; 52. Kameni plato, Priboj; 53. Porta manastira Sv. Prohor Pčinjski, Jablanica; 54. Gornje Gadimlje

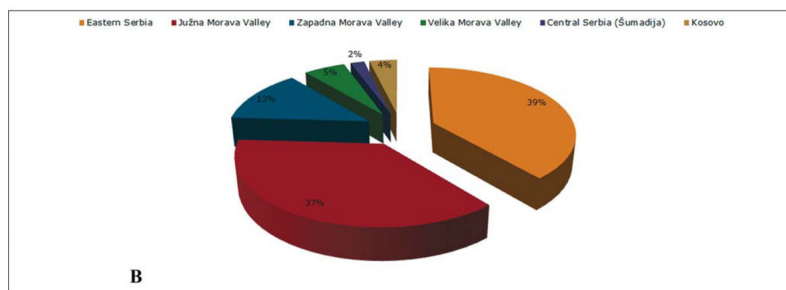
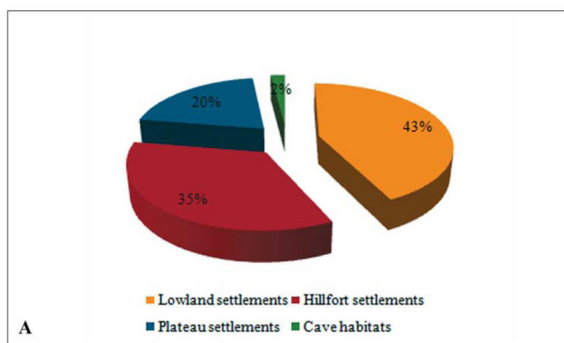


Figure 7.4. a. Topography of the Bubanj-Hum I settlements; b. Regional distribution of the Bubanj-Hum I settlements.

Eastern Serbia in the Late Eneolithic period

Territories of Eastern Serbia and the Iron Gates hinterland possess geological zones that are amongst the richest in ores found in Serbia. Mining activities in the area have been detected dating to the Bubanj-Sălcuța-Krivodol cultural complex, especially around the Bor mining basin.³⁸ It is assumed that the disintegration of the Early Eneolithic cultures in the first half of the 4th millennium BC was caused by a climate catastrophe, which was manifested through a long-lasting temperature rise leading to series of droughts and depopulation in some regions of the Eastern Balkans.³⁹ The only exception is observed in the Iron Gates and the Nišava valley, where the short-term occupations of the Cernavoda III and Baden-Kostolac populations, dated to the middle of the 4th millennium BC, can be detected.

As a reaction to the population movements from the Pontic Steppes, Coțofeni culture spread through the entire territory of Eastern Serbia, part of the southern Morava valley and Kosovo during the second half of the 4th millennium BC (Fig. 7.5).⁴⁰ A symbiosis of Kostolac and Coțofeni cultures appeared in the mountainous parts of the Iron Gorge hinterland, which can be observed through a specific ornamentation of pottery. Settlements of Kostolac culture in Serbia and the Danube region were usually concentrated in plains and on large river terraces. These settlements had long-term occupation and solid dwelling structures because of the agricultural and herding character of the Kostolac economy. On the other hand, the Coțofeni settlements show characteristics of a predominately herding- and transhumance-oriented economy.⁴¹ Development of a very unusual type of hillfort settlement⁴² was the result of geomorphological characteristics of the terrain and contact between the populations with different economic bases.

Revisionary research, which took place during the last decade in Eastern Serbia, identified 78 settlements of the Coțofeni-Kostolac culture, but only a few of them were excavated.⁴³ These

settlements were formed in a karstic landscape characterised by rocky hilltops at mid-altitudes and large concentrations of small watercourses, caves and rock-shelters. No evidence has yet been found for exploitation of copper by these populations, although they lived in the vicinity of ore outcrops. Settlements of Coțofeni-Kostolac culture are represented by hillforts, plateau settlements, lowland settlements and caves (Fig. 7.6a).

All hillfort settlements (11 sites) show the same pattern in their organisation and the topographic characteristics of the surrounding landscape in which they are located: limestone bedrock positioned on the edges of plains, sometimes where streams meet major rivers, having visual domination of the landscape and in proximity to cave habitats. The most important characteristic of these settlements is the extreme appearance of the landscape surrounding them, e.g. hard to access plateaus, mostly on steep cliffs. Dwellings are small, and stand on cliffs with a slope of up to 45 degrees. That was the reason for the artificial leveling of rocks on which they were built, thus making terraces, or embedding the rear part of the dwellings into the bedrock. This kind of settlement organisation could create the effect of houses floating in the air. Since they were built on locations that could be seen from long distances, they could have represented landmarks for newcomers, showing their domination over the territory. These seasonal settlements with dwellings constructed entirely above ground are connected to transhumance herding and represent some kind of identity mark, making the mountain passes and communication routes in the narrow gorges and river valleys their property. The results of archaeozoological analysis from some of these settlements have shown that they were probably seasonal, that is, they were used only during warmer periods of the year.⁴⁴

Cave habitats (10 sites) are chiefly found in close proximity to the hillforts. It is not yet clear if the caves were primarily used for keeping the herds or as habitations for people. The Zlotska Pećina represents one of the best investigated cave sites of the Coțofeni-

Kostolac culture in Serbia; stratigraphy there shows the continuity of occupation over a couple of millennia. In the Kapetanova Pećina near Majdanpek, a homogenous layer of this culture is about 3.5 m deep.⁴⁵ This kind of habitation was often used during the Late Eneolithic in Romania's Carpathian region.⁴⁶

Plateau settlements (21 sites) were positioned on slightly elevated locations, and are represented by large flat plateaus which could easily be transformed into fortresses. These settlements are often found in the contact zones between mountainous and lowland ecosystems. From that, it can be assumed that these types of settlements could represent congregation places for large herds or stations along the path of seasonal migrations of cattle-herding populations.

Lowland settlements (36 sites) in Eastern Serbia are usually found on the banks of the Danube. Consulting older topographic maps, made before the construction of Đerdap I and II dams, it can be seen that most of these settlements were in close proximity to river islands or sand ridges, where rivers are shallow and fords to the other side are often formed during droughts or strong winters. During earlier archaeological excavations at the most important Late Eneolithic settlements, such as the Zlotska Pećina, Čoka lu Balaš, Kulmja Škjopuluji and Četaće in Kovilovo, most attention was given to an analysis of pottery finds, without any analysis of faunal remains or absolute dating.⁴⁷ More recently, the results of archaeozoological analysis from test excavations at a hillfort settlement of the Mokranjske stene rock shelter suggest that the economy was based on transhumance herding and a pastoral way of life. Taphonomic analysis of faunal remains has shown that cattle were not used for traction (or field plowing), and goats were used mainly for milk and dairy products (so far cut marks have not been observed on goat bones), while the age at death of sheep suggests that they were kept until the age when fleece starts to lose quality (around six years old).

The chronological framework for the Coţofeni-Kostolac culture

in Podunavlje and Eastern Serbia can be established only relatively, because no absolute dating was conducted. Dating of sites from nearby countries has shown that this cultural manifestation should be placed in the late 4th and the beginning of the 3rd millennia BC, and the immediately succeeding period.⁴⁸ However, the stratigraphy of the Kapetanova Pećina shows that the settlements of the Coțofeni-Kostolac culture lasted longer than previously thought, and that they continued to exist in isolated mountainous areas of the Iron Gorge hinterland during the whole of the 3rd millennium BC.

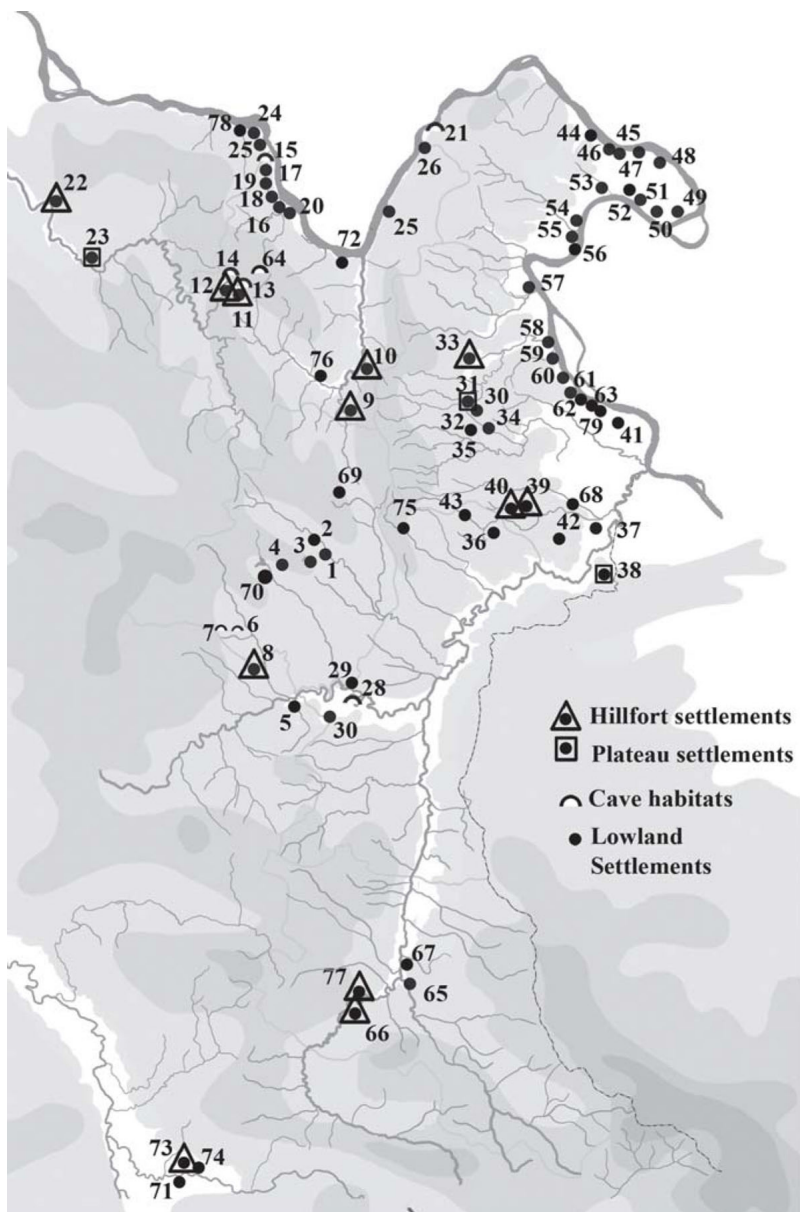


Figure 7.5. Distribution map of the Coțofeni-Kostolac settlements: 1. Čoka Morminc; 2. Kod vodenice, Mali Krivelj; 3. Čoka Lu Balaš; 4. Čoka Kormaroš; 5. Selište, Šarbanovac; 6. Zlotska pećina; 7. Vernjikica; 8. Bogovinska pećina; 9. Pjatra kosti, Crnajka; 10. Kulmja

Škorpulji; 11. Kljanc; 12. Jezero; 13. Kapetanova pećina; 14. Rajkova pećina; 15. Pšćera Mare; 16. Košobrdo, Arija Babi; 17. Velike livadice 2; 18. Lepenska potkapina; 19. Katarinine livade; 20. Vlasac; 21. Trajanova tabla, pećina; 22. Stenje, Turija; 23. Velika čuka, Neresnica; 24. Manastir, Dobra; 25. Padina; 26. Rečica, Malo Golubnje; 27. Hajdučka vodenica; 28. Banjska stena and Potkapina; 29. Njiva Z. Brzanović; 30. Varzari; 31. Smiljkova glavica; 32. Smiljkova glavica-Selište; 33. Vratna-Veliki most; 34. Duge livade, Šarkamen; 35. Veliko brdo, Popovica; 36. Glavica. Brusnik; 37. Kapu Đaluluj; 38. Četaće, Kovilovo; 39. Kamenolom, Mokranjske stene; 40. Potkapina, Mokranjske stene; 41. Ideće; 42. Grabar-svračar; 43. Gradište, Sikole; 44. Diana; 45. Donje Butorke; 47. Livadice, Mala Vrbica; 48. Istočno od sela, Mala Vrbica; 49. Zbradila-Fund; 50. Obala, Korbovo; 51. Glamija, Korbovo; 52. Pesak, Vajuga; 53. Ušće Jakomirskog potoka; 54. Biljevina, Velesnica; 55. Obala, Ljubičevac; 56. Ostrvo, Ljubičevac; 57. Brzi Prun; 58. Ušće Slatinske reke; 59. Knjepište; 60. Ruženjka; 61. Borđej, Kusjak; 62. Motel, Kusjak; 63. Vrkalj, Kusjak; 64. Kameni rog; 65. Dubrava I; 66. Bolvan; 67. Adžijsko-Vinsko; 68. Lalunj, Mokranje; 69. Tanda-La Tufek; 70. Brestovačka banja; 71. Bubanj; 72. Veliki Gradac; 73. Velika humska čuka; 74. Donja Vrežina; 75. Donja Bela reka; 76. Šetaće, Rudna glava; 77. Višnjari, Rgošte; 78. Gospođin vir, Dobra; 79. Grle, Kusjak.

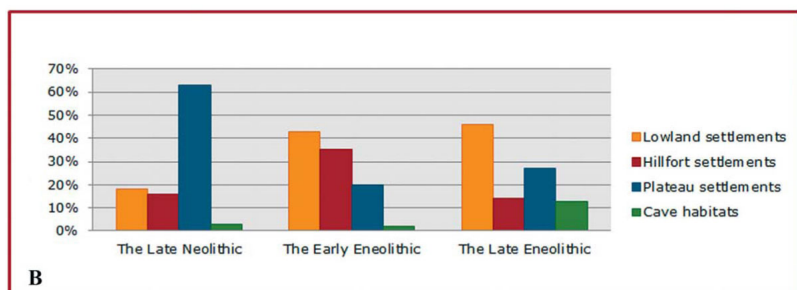
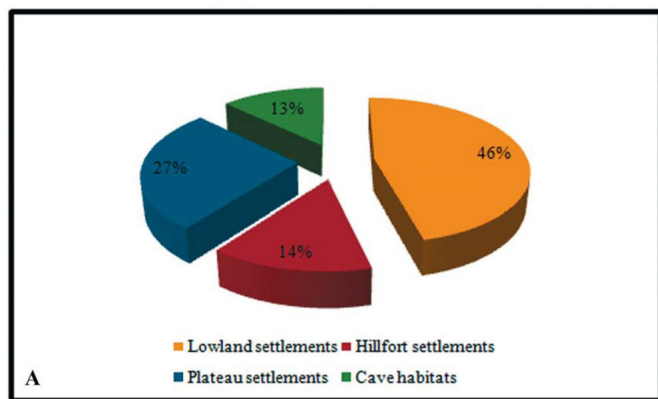


Figure 7.6. a. Topography of the Coțofeni-Kostolac settlements; b. Relation of topographic data in Serbia during the Late Neolithic and the Eneolithic.

Conclusions

These case studies from Serbia, covering the period from the end of the 6th to the first half of the 3rd millennium BC, have just begun to unravel some issues connected to our understanding of settlement patterns during the Copper Age. They point to an advanced level of settlement organisation during all three periods. During the Vinča period, a developed dynamic in the organisation and use of space and various landscapes was manifested through the relationship between slope and lowland settlements on the one hand, and hillfort settlements and cave habitations on the other. In the post-Vinča period (Bubanj-Hum I) population density in some regions in Serbia and the percentage of representation of different

settlement types is changing (Fig. 7.6b),⁴⁹ which points to serious changes in the socio-economic organisation of these societies. A very small number of sites (less than 2%) settled both during the Vinča and Early Eneolithic period strongly suggests an important change in settlement patterns with the onset of the Eneolithic. The majority of the preceding Vinča territory is almost without any data of the Bubanj-Hum I period (except the Južna Morava valley), while the slope settlements, so characteristic during Vinča, are much less numerous. It is worth noting that the same sites were not settled again (except Gradac in Zlokućane). In general, during the Early Eneolithic settlements are smaller and the percentage of lowland and hillfort settlements rises as a result of agricultural, herding and metallurgical intensification. The rising number of hillfort settlements in strategically dominant positions, often with lowland settlements in close proximity, indicates a need for maintaining control over the landscape, resources, transhumance, and in the Stara Planina Region, over ore sources. Similar settlement affinities have been shown by the Late Eneolithic populations, which are attested by a variety of settlement types (Fig. 7.6b). Since the chronological framework of this cultural complex lasts around 500 years, there are indications that some cave and hillfort settlements were successively (seasonally) rather than continually settled in the course of the entire span of the Late Eneolithic. The relationship between the locations of the Kostolac-Coţofeni settlements in Eastern Serbia shows similar pattern, but is based on different economic and social pursuits than in the Early Eneolithic, although both societies had similar criteria in choice of settlement location, judging from a large number of sites (over 50%) with settlement remains from both periods.

The general framework for future research regarding settlement patterns in the Central Balkans is initiated by this paper, and we hope that from this perspective we will be able to better understand the socio-economic strategies of prehistoric

populations during a dramatic period of climate and technological changes.

Notes

- 1 The article presents the result of the project Archaeology of Serbia: Cultural identity, integration factors, technological processes and the role of the Central Balkans in the development of European prehistory (OI 177020) of the Ministry for Education, Science and Technological Development of the Republic of Serbia.
- 2 The term Copper Age includes Late Neolithic and Eneolithic. For absolute chronology see: Borić 2009; Boyadzhiev 1995; Boyadzhiev 1998; Gläser 1996; Lazarovici 2006; Nikolova 1999; Schier 1996.
- 3 The concept of “archaeological culture” is used in this paper as an analytical term which signifies smaller or larger communities in the past, settling over a defined territory, with identical or closely similar characteristics within material and spiritual aspects of life.
- 4 Map courtesy of M. Milinković, Faculty of Philosophy, Belgrade.
- 5 Chapman 1981; Chapman 1990; Glišić 1968.
- 6 For certain aspects of the Vinča settlement pattern see: Arsić 2011; Derikonjić 1996; Jerinić 1988; Obradović and Perić forthcoming; Perić 2010; Ristić-Opačić 2005.
- 7 Perić 2012; Šljivar and Kuzmanović-Cvetković 1997; Šljivar *et al.* 2006; Tasić 2008; Tringham and Krstić (eds) 1990.
- 8 Chapman 1981; Garašanin 1979; Ružić and Pavlović 1988.
- 9 Determination of topographic location was possible for 103 of the sites.
- 10 Milanović and Milojević 2012; Milanović 2013.
- 11 For example, sites of various sizes (based on surface finds) in the Aleksinac Basin are located on the right bank of the Južna Morava River, at distance of 5–10 km (as the crow flies).
- 12 It is necessary to emphasise that category plateau settlements on [Figure 7.6b](#) for Late Neolithic includes Slope, Plateau, and Slope and Lowland Vinča settlements making a total of 64.
- 13 Bulatović and Jović 2010; Milanović 2011.
- 14 On flooding during the Neolithic see Perić 2009. On recent flooding see Jovanović *et al.* 1969; Rakićević 1969.
- 15 Beside hillforts, some of the slope settlements have very good

visual communication with their surroundings as well (e.g. Drugo Aleksinačko Okno near the town of Aleksinac in the lower part of the Južna Morava basin).

16 Hillfort settlements have been found in the hinterlands of Zapadna (Plosna Stijena in Radoinja, Šengoljska Gradina in Rasna, Velika Gradina in Stapari, Kuline in Roge), and Južna Morava (Gradac near Zlokućane, Progon Čuka at the entrance to the Grdelica Gorge, Dva Brata in Ranutovac, Redžov Vis in Tulare *etc.*), in Kosovo (Valač near Kosovska Mitrovica), on the banks of the Sava and Danube (Sremački Rt in Železnik, Gornji Grad in Belgrade) and elsewhere. At some of them fortification structures have been identified in the form of ditches, stone ramparts and palisades (Gradac, Valač, Vinča, Pljosna Stijena, Divlje Polje in Ratina *etc.*). See Chapman 1981; Garašanin 1979, 154–5; Tripković 2013, 199–212.

17 Bogosavljević-Petrović 2005; Chapman 1981, 109–10; Jovanović 1982; Zotović 1988.

18 See: Chapman 1981, 40–51; Garašanin 1979, 181–94; Ristić-Opačić 2005, 77–8, 98–100; Trbuhović and Vasiljević 1983.

19 Garašanin 1973, 70–2; Garašanin 1979, 153–5.

20 Tringham and Krstić (eds) 1990.

21 Jovanović and Glišić 1961.

22 During the 2011–2012 excavations, the settling of three different locations in the area of Donji Pavlovac village near Vranje (Gumnište, Čukar and Kovačke njive) was first recognised, with complex stratigraphies, showing the existence of multiple Starčevo and Vinča living horizons in vertical stratigraphy as well as developed horizontal stratigraphy. See Garašanin and Garašanin 1958; Perić and Perić 2012. All authors conducted excavations at the site of Kovačke Njive.

23 Lazarovici *et al.* 2001.

24 Garašanin and Garašanin 1979; Stevanović and Jovanović 1996.

25 See: Chapman 1981; Ristić-Opačić 2005, 100–4.

26 Garašanin and Simoska 1976, 24; Tasić 1979, 87–114.

27 Jurišić 1970, 22; Stojić 2000, 15; Zotović 1988, 57–78.

28 Bulatović 1997, 71–7; Garašanin and Garašanin 1979, T. III/4, 6; T. IV/4.

29 Blagojević 2005, 31–78.

- 30 Garašanin 1973, 168–73; Tasić 1979, 98–100.
- 31 The chronological transition between the Late Neolithic and the Early Eneolithic corresponds closely to a significant climate change that caused the disintegration of the Linearband cultural complex in Central Europe, as well as the collapse of Mediterranean and sub-Mediterranean cultures (Todorova 2007, 1–6).
- 32 Bulatović 2012, 281–302.
- 33 Sherratt 1981, 261–306.
- 34 Tasić 1979, 109–10.
- 35 Prendi 1966, 255–80.
- 36 Garašanin 1973, 165; Tasić 1979, 93–4.
- 37 Garašanin *et al.* 1971, 15.
- 38 Kapuran 2011.
- 39 Todorova 2007.
- 40 Tasić 1978; Tasić 1983.
- 41 Tasić 1978.
- 42 These hillfort settlements are situated on extremely steep and inaccessible rocky outcrops surrounded by cliffs.
- 43 Kapuran and Bulatović 2012.
- 44 Kapuran and Milošević 2013.
- 45 Kapuran 2011; Tasić 1971.
- 46 Panayotov and Aleksandrov 1988; Roman 1976.
- 47 Tasić 1982.
- 48 Boyadzhiev 1995, 175, 178; Boyadzhiev 1998, 350, 357–8; Petrović and Jovanović 2002, 298.
- 49 Compare Figs 7.1, 7.2 and Figs 7.3, 7.5.

Modelling the black box: Bulgaria in the 4th millennium BC

*Inga Merkyte*¹

Introduction

Based on my own excavations in North-Western Bulgaria of archaeological sites from the end of the 5th and the 4th millennium BC (Telish-Lîga and Ezero-Kale at Sadovets) as well as network analyses obtained with the help of novel statistical tools applied on chemical investigations of metal finds (carried out by N. Chernykh in the 1970s), it is argued that proper historical reconstructions can only be achieved through deconstruction of the huge bipolar Kodjadermen-Gumelnița-Karanovo VI and Krivodol-Salkuța complexes, which should be substituted by much smaller and highly dynamic cultural and social groups. The 4th millennium BC “black box” of poorly explained cultural changes should be enlightened by hypothesis-driven research daring to deal with cultural decline in the face of novel choices, social linkages, warfare and even migrations.

Archaeological background: Excavations in North-Western Bulgaria

There are several periods in human history that appear as black boxes. We have fairly good ideas about what was happening

before and what went after. The period in between is foggy in spite of “before” and “after” being strikingly different. The black box analogy is of course a reflection of our ignorance and yet, such a term is still highly applicable for the 4th millennium BC in the Balkans. In Bulgaria, it is known as the “Transitional period”. This term is creating a great deal of dissatisfaction but is still the usual reference for the 4th millennium BC.²

During the years 2000–02, an archaeological research program was instigated in North-Western Bulgaria. It was focused on the final phases of the Bulgarian Copper Age, the lower boundaries of which are traditionally set around 4200 BC for the areas adjoining the Black Sea and at 3800 BC for the western part of the country.³ The project was designed as a complex undertaking targeting new archaeological sites but also benefiting from earlier research. This strategy was intended to provide a basis for establishing vertical chronology based on horizontally disarrayed data, an attempt to overcome the sequential shortages produced by the absence of tell-sites in western Bulgaria.⁴

The Lîga site

The excavations concentrated on the settlement of Lîga near Telish with several phases of occupation (Fig. 8.1).⁵ Lîga is situated on a large plateau overlooking a river basin with a series of dams. It is located between Iskar and Vit, two important tributaries of the Danube that make up one of the very few routes across the Balkans linking the Aegean Sea and the European hinterland. Just 1.5 km to the south of Lîga, and on the same plateau, is Redutite, the only fully investigated Copper Age site in Western Bulgaria.⁶ Redutite became famous for the discovery of a settlement phase dated to the Transitional period lying on top of three Copper Age phases. This settlement produced a rich inventory of pottery and evidence, apparently, of apsidal houses.⁷ The Redutite sequence provided a fine starting point for piecing all the relevant data together, allowing integration of earlier investigations in the

region and directing the investigations of new sites. The strategy led to establishment of a coherent series of historical events and through this, a regional chronology.

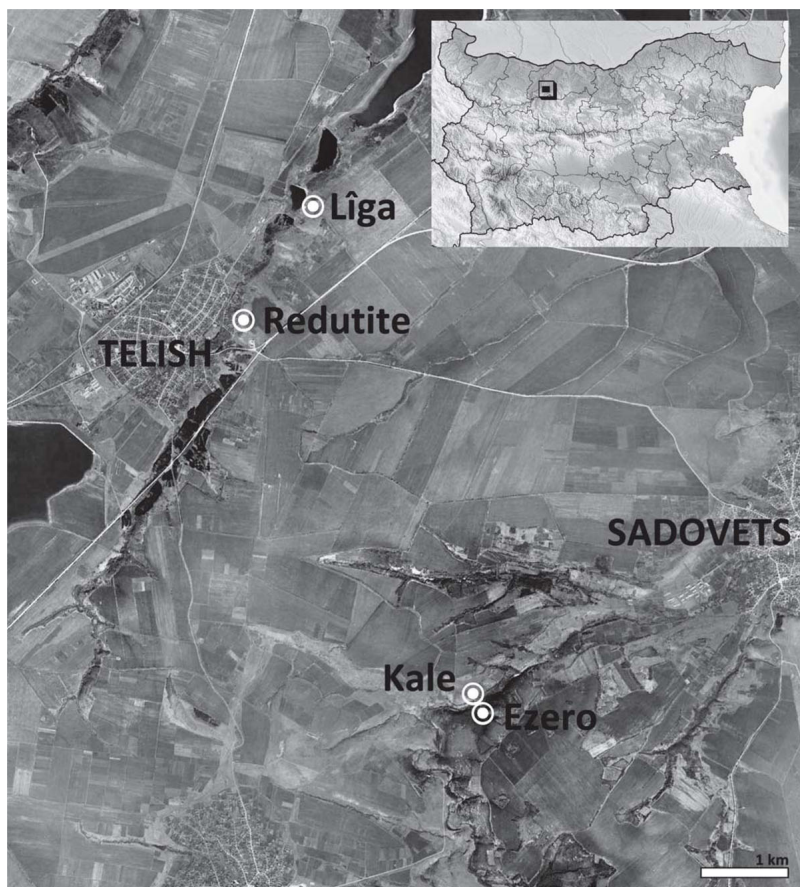


Figure 8.1. Map of Bulgaria with location of the investigated sites.

The excavations at Lîga were based on a highly detailed context-orientated strategy. This strategy revealed very many aspects of Late Copper Age society previously virtually unknown, such as modes of pottery production, evidence for copper production, procurement strategies for flint, household organisation, and aspects of mating and local social behaviour. In fact, a small “Pompeii” of Lîga 2 was unearthed, the structures of

which were abandoned during a conflagration that started in the late summer sometime around 4400 BC. It was also established that the densely-clustered settlement was founded during the autumn, after the harvest. A number of burials were also located, intersecting Copper Age house walls. The graves turned out to belong to the earliest Bronze Age in the main. But most importantly, the investigations of two Late Copper Age settlements, Lîga 1 and Lîga 2, pointed towards the existence of several social groups within the same region. Initially, falling into the “evolutionary trap”, the differences between the two settlements were explained by diachronic development and change; however, inclusion of data from other Late Copper Age sites within the region (in fact within the radius of 10 km from Lîga) have exposed different modalities behind the observed differences. Based on this evidence, it is safe to assume that at least two distinct social (or perhaps even ethnic) groups were present in the same area simultaneously. These groups had diverging material cultures in terms of building of dwellings and pottery production, as well as other traditions and their orientations.⁸

The Ezero-Kale duplex

In tandem with the excavations at Lîga, surrounding archaeological sites were surveyed and studied. One of these is the multi-period site of Ezero, which can be considered the first tell in the region.⁹ Regrettably, the site was disturbed by plunderers who dug holes in a surprisingly archaeological fashion at several parts of the tell, some of the trenches even reaching bedrock four meters below the surface. The walls of the illicit excavations were cleaned and detailed studies carried out of a long sequence stretching from the Early Copper Age to the Early Bronze Age and even beyond, thus bridging the “gap” of the Transitional period.

Ezero is placed on an island hillock surrounded by a stream in a deep, narrow and very lush valley. The site is impossible to

detect when one moves across the surrounding plateau up above or through the hills. The site of Kale, located opposite Ezero on the edge of the rocky plateau beyond the stream, also held evidence on the latest phase of the Copper Age as well as of the mysterious Transitional period. In the Early Bronze Age Kale was fortified by a powerful semi-circular stone wall. In this period, the knoll of Ezero below was abandoned. Investigations at Kale were undertaken in response to bulldozing of the site by the plunderers.

The end of the Copper Age

The investigations at Lîga, Ezero and Kale, the chronologically parallel data sets from the whole area, and subsequent studies of the excavated data and of published information have brought to light unparalleled observations regarding the rich Late Copper Age society. The studies demonstrate that the Transitional period is a reality (at least in present-day Bulgaria), and that it represents a marked decline in culture and certainly in population, as well as an opening towards economic and technological re-orientations and utilisation of a much broader spectrum of natural resources.

A new dimension can be added to this, namely diachronic studies of related societies in South-Eastern Europe as well as observations from West Africa.¹⁰ The ethnographic data demonstrate that similarities in material culture may create false conceptions and not reflect the diverse identities of social groups as well as the boundaries between them. It seems that the identification of a large cultural region united through graphite painted pottery carried out by H. Gaul in the 1940s has created a false framework for understanding the past, which still influences the way we think.¹¹ Bulgaria of the Late Copper Age is subdivided into two major groups, Kodjadermen-Gumelnița-Karanovo (KGK) and Krivodol-Salcuța-Bubanj (KSB), the main difference being defined through the presence or absence of tell settlements.¹²

In fact, the Ukrainian and Moldavian ways of dealing with the cultural manifestations of the contemporary Tripolye-Cucuteni

cultures are operationally far more open and effective. The Copper Age cultural landscape is here perceived as highly fragmented, acknowledging the existence of a myriad of local groups. This allows for a flexible approach to the social and cultural dynamics. In effect, the distribution maps of different Tripolye and Cucuteni groups during the phases BII–CI (4200–3500 BC) have a striking similarity to ethnographically documented regions, embracing multiple distinct social groups.¹³

Old analyses of metal, new cultural observations

Returning now to the black box, it is today possible to demonstrate a different hypothesis of what is generally believed about what went on before and after the 4th millennium BC. Applications of novel statistical methods (combined with GIS) on more than 1200 trace metal analyses carried out by Chernykh in the 1970s¹⁴ have revealed that the social landscape of Copper Age Bulgaria was indeed much more fragmented than previously suggested.¹⁵ Distinct groups, not developing into a full network, are seen in North-Eastern Bulgaria (with the Varna cemetery, which at the same time deviates greatly from the inland sites, demonstrating quite different and very consistent burial practices, in fact contrasting with the contemporary inland burial traditions), the Upper Thracian Plain (with the Karanovo tell and the Aibunar mines), North-Central Bulgaria (with sites around Veliko Tarnovo, such as Hotnitsa) and North-Western Bulgaria (with Krivodol, a multi-layered hilltop site) (Fig. 8.2). Furthermore, it can be observed that there is great inequality in the established networks.

Thus, it is possible to subdivide the whole region into smaller segments with distinct identities and histories without having to suggest synchronicity with other segments as is implied by the standard subdivisions into cultures and cultural complexes. The new approach enables case-sensitive differentiation of regional developments, unbound as it is by traditionally assumed evolutionism.

Ethnography, especially if unaffected by recentism, is also offering valuable insights. Anthropologist H. Spencer (renounced for his “survival of the fittest”) suggested in 1860 that societies, like living organisms, developed in three stages. In their early, undeveloped state there is hardly any mutual dependence even between neighbouring societies; later on dependencies become so strong that the activities and life of each part are made possible only by the activities and life of the rest.¹⁶ Deconstruction of the KGK-KSB realm, along with reconceptualisation of the cultural rhetorics, will hopefully allow for proper reconstructions of the historical trajectories.

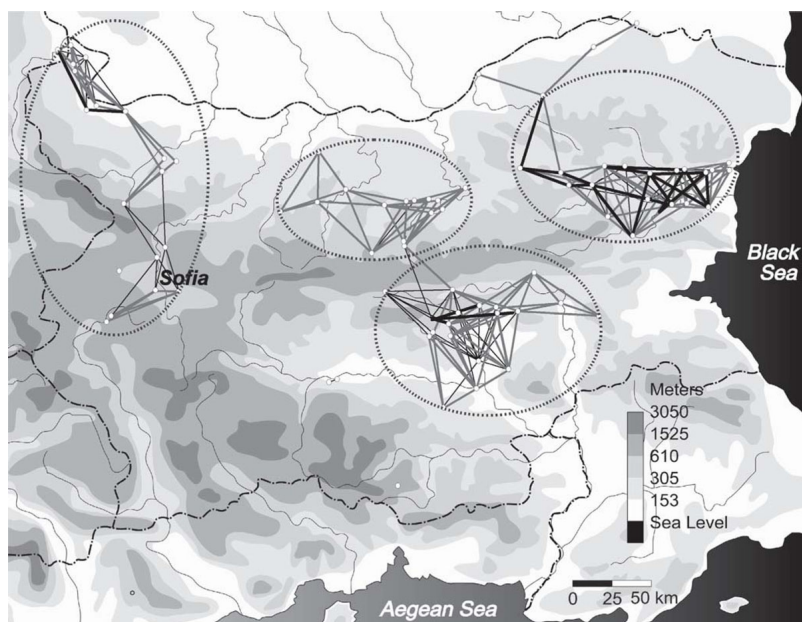


Figure 8.2. The results of network analyses of metal objects dated to the Copper Age. The colour of the connecting lines indicates the strength of the connections between the find locations of the investigated metal objects, black being the strongest link. Circles indicate clusters of socially related regional groupings.

Indeed, in the recent search for scenarios for the ephemeral 4th millennium BC it is possible to observe a shift in focus from mono-

causal explanations to chain reactions.¹⁷ At the same time, global perspectives imply the existence of a common prime mover that caused for instance the demise of the Copper Age/Late Neolithic in South-East Europe and other major regions, such as the Southern Levant, Eastern Arabia and the Oman Peninsula. A link to the 5.9-kiloyear climatic event is a rather apparent factor.¹⁸

Within the Tripolye-Cucuteni cultural cluster a number of population movements are detected, larger and smaller, beginning in phase BII. The movements are seen as going in an easterly direction, people leaving the interfluvial of Prut-Dnester (roughly modern day Moldova), which now became sparsely populated.¹⁹ The outflow is seen as a result of a decrease in resources preconditioned by climatic factors. But it is a great oversimplification to postulate only an eastern direction of movements. Supported by growing evidence of conflagrations, even with human casualties, in Bulgarian and Romanian tells, a landscape of conflict is emerging, at first affecting the mouth of the Danube and subsequently spreading to the central parts of the river basin. Externally inflicted violence in South-Eastern Bulgaria is seemingly causing widespread local violence moving along the scale from raids to regular warfare.

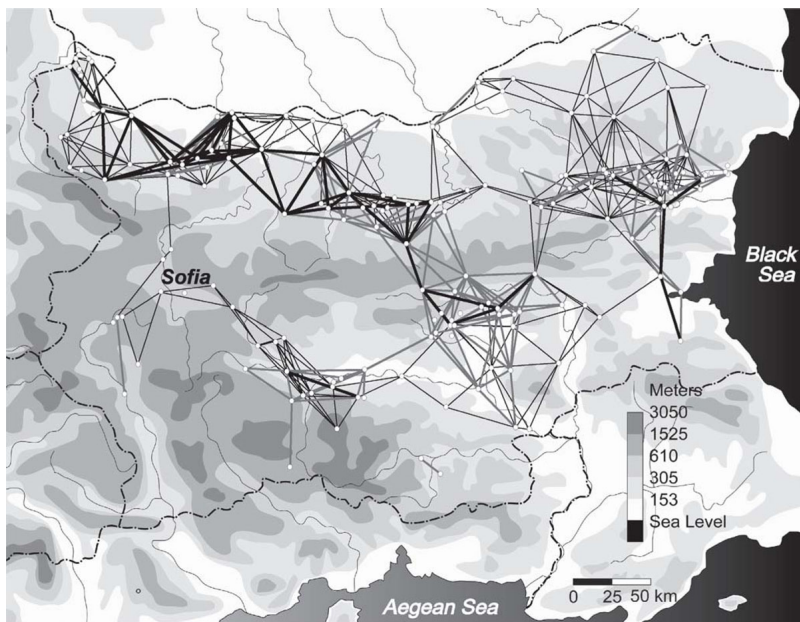


Figure 8.3. The result of network analysis of metal objects dated to the Bronze Age. The colour of the connecting lines indicates the strength of the connections between the find locations of the investigated metal objects, black being the strongest link.

The consequences and implications of these observations are vast, comprising fundamental social reorganisation and many innovations, spanning from increased mobility and use of larger “catchment” areas to new types of societal contacts, that is, a shift from personally based interaction to extended regional communication based on group identity and communal involvement. New vectors of exchange were also formed, with the Danube as the main highway. There is in fact a re-definition of the whole material arena, with novel types of pottery, cuisine styles, arsenic copper and two-partite moulds applied in copper metallurgy. There are also changing forms of combat as also of mortuary practices, changing symbolic languages, and formation of new identities.

Currently the richest data on the transitional 4th millennium

BC derives from the western part of Bulgaria, including clear Copper Age traditions as well as emerging links with Central Europe. It is also in this part of Bulgaria that we encounter the final break with the Near Eastern legacy in the form of novel diversified subsistence strategies, minimising environmental and other risks. A cemetery discovered at Lîga and counting seven investigated burials from ca. 3000 BC may represent the last echoes of the famous Varna population to the east, to judge from the peculiar placement of the dead in the graves, on their right side with heads towards the north.²⁰

In fact, similar processes were also taking place in the northern part of Europe at about the same time, driving Neolithic cultures northwards in response to the 5.9-kiloyear climatic event and several other pressures on old economic and social forms, as exemplified by the spread of agriculture and of megaliths.

Conclusions

The Bulgarian situation in the 4th millennium BC remains enigmatic, however, but hopefully not for long. It is also important to note a preservation bias. Usually, the layers of the Transitional period belong to the last and short-lived settlement phase at a site or form a single horizon at the top level, yielding limited amounts of debris and being highly exposed to later disturbances. The attractiveness bias is also still playing a role; in a country of huge tells and rich Thracian tombs, there is little interest in excavating dull settlements. This leaves the smaller single-layer sites unexplored, especially now when the current economic climate demands spectacular finds to ensure funding. Nevertheless, the recent findings are encouraging the belief that targeted research will eventually pay off. Although found accidentally, a very informative site has been discovered at Banunia near Lovech, holding evidence of three building horizons of the Transitional period under a Middle Bronze Age barrow.²¹

Summing up, it is highly notable that the cultural picture now

emerging is increasingly more complex than before. What may look like greater cultural similarity during the Copper Age is in fact hiding a high degree of social fragmentation. The traditional perception of the Bronze Age in the Southern Balkans as being culturally segmented contrasts with the demonstrated tight networks, in fact connecting Central Europe with the Near East (Fig. 8.3). Yet at the same time the social groups identified for the Copper Age are still clearly discernable in the Bronze Age. This suggests that social or rather ethnic boundaries survived the transformations of the still enigmatic 4th millennium BC, a finding that will have great significance for the exploration of the so-called Transitional period in Bulgaria in the future.

Notes

- 1 My deepest gratitude to the Dream Team of Telish: thank you, Søren, Jesper, Petar, Maya, Rumen, Niki, Julij, Asia, Vania, Svilen, Radka, and many, many other dedicated collaborators. Grateful acknowledgements to Prof. K. Randsborg, University of Copenhagen, who inspired and directed the Bulgarian venture. The activities in Bulgaria were carried out with support from the E. Munksgaard Foundation, Copenhagen.
- 2 Merkyte and Albek 2012.
- 3 Todorova 1986; Todorova 1995; Vaysov 1992; Vaysov 2002; see also Reingruber and Thissen 2009.
- 4 Pernicka *et al.* 1997.
- 5 Merkyte *et al.* 2005.
- 6 Gergov 1992.
- 7 Gergov 1996.
- 8 Merkyte *et al.* 2005; Merkyte 2007; Merkyte and Albek 2012.
- 9 Merkyte 2007.
- 10 Merkyte and Albek 2012.
- 11 Gaul 1948.
- 12 Todorova 1986; Pernicka *et al.* 1997.
- 13 Kruts 2012; Ryzhkov 2012.
- 14 Chernykh 1978.
- 15 Albek 2011; Merkyte and Albek 2012.

16 Offer 2010.

17 Merkyte 2007.

18 Anthony 2007; Weninger *et al.* 2009.

19 Ryzhov 2012; Diachenko 2012.

20 Merkyte *et al.* 2005.

21 Zidarov and Valentinova 2012.

Possible approaches to tracing the fate of the population of the Varna, Kodjadermen-Gumelnița-Karanovo VI and Krivodol-Sălcuța cultures

Petya Georgieva

Introduction

Substantial changes in the cultural appearance of South-Eastern Europe and the Mediterranean took place at the end of the 5th millennium and during the 4th millennium BC. These were a result of populations migrating away from the traditional places of habitation. These changes are very clearly discernible along the Lower Danube and in Thrace: The Late Eneolithic Varna, Kodjadermen-Gumelnița-Karanovo VI and Krivodol-Sălcuța cultures ended their evolution and in part of their territories were replaced by new cultures (Cernavoda I-Pevets and Sălcuța IV-Herculane II/III-Bubanj Hum Ib-Galatin) while another part, Thrace, remained depopulated until the beginning of the Early Bronze Age. This period of changes – called the Transitional period (from the Eneolithic to the Bronze Age) in Bulgaria¹ – lasted for about 700–800 years and fell in the 4th millennium BC.² This paper reviews finds from this period from Bulgaria in chronological order, aiming to trace the fate of the population

carrying the Late Eneolithic cultures and reconstruct the process of formation of the new cultural communities.

In the north of the Balkans the beginning of this Transitional period, which eventually led to the formation of the Early Bronze Age cultures, is related to an influx of a stock-breeding population from the North Black Sea steppes – the so-called Khvalynsk-Sredny-Stog cultural-historical community or region.³ It can be traced by the distribution of pottery specific to the nomads of that region, made from clay mixed with clam or snail shells and called “Type C” pottery, as well as by the distribution of “zoomorphic sceptres” and individual burial finds (Fig. 9.1).⁴ Stock-breeders migrated in two directions from their starting areas: west/south-west towards the Lower Danube and Thrace, and south towards the Caucasus.⁵ Separate groups reached North Anatolia, where finds of “Type C” pottery are also present.⁶ Some of the authors who study these matters assumed that the migration had the nature of a destructive invasion, which caused the disappearance of the traditions of the cultures of Varna, Kodjadermen-Gumelnița-Karanovo VI and Krivodol-Sălcuța – the so-called first steppe invasion.⁷ Later the idea of a destructive invasion was rejected and different scenarios of reconstructing these events were proposed.⁸ The main problem in studying this “process of resettlement”, “migration”, “invasion” or “mutual penetration” of a stock-breeding population from the steppes into the Lower Danube and Thrace is the absence of sufficiently precise information regarding the relative chronology of the sites. The finds that mark it, primarily individual graves or in many cases random discoveries of zoomorphic sceptres, are in practice assumed to be contemporary, immediately following the end of the cultures of Varna and Kodjadermen-Gumelnița-Karanovo VI. Finds from closed settlement complexes and in particular finds of “Type C” pottery in farming settlements are very useful in this regard. They allow the tracing of stages in the evolution of the process of resettlements – from their earliest appearance to the beginning of

the Early Bronze Age.

Changes to the settlement network of the cultures of the Late Eneolithic

The territory under consideration is occupied during the Late Eneolithic (the second half of the 5th millennium BC) by the cultures of Varna, Kodjadermen-Gumelnița- Karanovo VI and Krivodol-Sălcuța. The differences between Varna and Kodjadermen-Gumelnița-Karanovo VI are relatively small and are mostly reduced to differences in burial rituals. The pottery assemblages belonging to these two cultures are largely the same, which facilitates the synchronisation of their stages. The differences between the characteristics of the Kodjadermen-Gumelnița-Karanovo VI culture and the Krivodol-Sălcuța culture, which is located to the west of it, are significantly larger. The pottery assemblages are similar only in a most general sense, in terms of production technique and ornamentation, but a significant number of the shapes are substantially different. There are also differences in the density of the settlement network during the separate evolutionary stages of the cultures from the east and the west, as well as in the density of the settlement networks in the various geographically separate microregions of each culture.

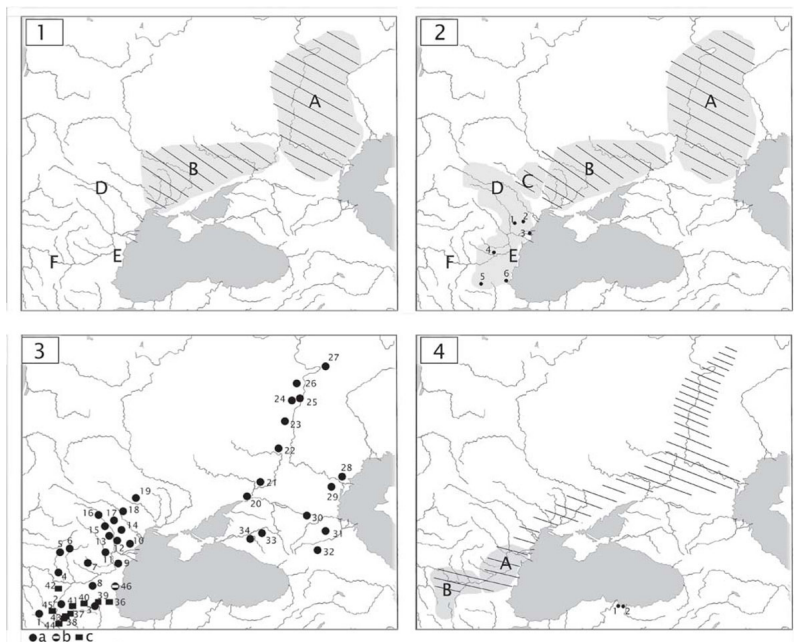


Figure 9.1. Maps of the stages of spreading of “Type C” pottery and zoomorphic scepters. Map 1. Spread of “Type C” pottery (oblique lines) during the second half of the 5th millennium. A: Khvalynsk, B: Sredny Stog, D: Cucuteni–Tripol’ye, E: Kodjadermen–Gumelnița–Karanovo VI and Varna, F: Krivodol–Sălcuța. Map 2. Spread of “Type C” pottery (oblique lines) at the end of the 5th millennium. A: Khvalynsk, B: Sredny Stog, C: contact zone between Cucuteni–Tripol’ye and the steppe stock-breeding cultures, D: Cucuteni–Tripol’ye, E: Kodjadermen–Gumelnița–Karanovo VI and Varna, F: Krivodol–Sălcuța. Map 3. Spread of: a: zoomorphic scepters (after Govedarica 2004, fig. 57), b: early ochre burials, c: settlements of phase IV of the Kodjadermen–Gumelnița–Karanovo VI and Krivodol–Sălcuța cultures; 1: Suvodol–Šuplevec, 2: Răževo, 3: Drama, 4: Sălcuța, 5: Vințu de Jos, 6: Vaja (Văleni), 7: Ariușd (Kasberg), 8: Kjulevča, 9: Casimcea, 10: Suvorovo II, 11: Fitonești, 12–3: Obîrșeni, 14: Bîrlalești, 15: Mogoșești, 16: Ruginoasa, 17: Fedeleşeni, 18: Verchnij Žory, 19: Berezovskaja GES, 20: Rostov-na-Donu, 21: Konstantinovsk, 22: Chutor Šljachovskij, 23: Danilovka, 24–5: Chlopkovo Gorodiște, 26:

Khvalynsk, 27: Samara, 28: Kokberek, 29: Dzangr, 30: Archara, 31: Terekli-Mekteb, 32: Vladikavkaz, 33: Jesenovaja Poljana, 34: Majkop, 35: Gonova Mogila, 36: Sozopol, 37: the Yagodinska Cave, 38: Haramiyska Dupka, 39: Tatul, 40: Chatalka, 41: Banyata, 42: Rebarkovo, 43: Dolno Dryanovo, 44: Ilinden, 45: Vaksevo-Skalet, 46: Reka Devnja. Map 4. Spread of "Type C" pottery (oblique lines) in the 4th millennium. A: Cernavoda I-Pevets, B: Galatin-Sălcuța IV-Herculane II-III; 1: Dündartepe, 2: Tekeköy.

The whole Western Black Sea coastal area was initially assumed to be the territory of *the Varna culture*.⁹ Exploration began in recent years of the newly discovered necropolis at Kozareva Mogila,¹⁰ falling within the hypothetically determined territorial scope of the Varna culture. In this necropolis, the ritual is different from the one characteristic of the Varna culture and similar to the one characteristic of Kodjadermen-Gumelnița-Karanovo VI. It follows that the territory of this, indeed impressive, phenomenon called the Varna culture is significantly smaller than the one determined initially – at present only within the Black Sea region of South Dobrudja. There is no indication of changes to the density of the settlement network within this territory. The latest stage in its evolution is known from the uppermost Eneolithic layer of the only settlement that has been explored by excavations, Durankulak-Golemiyat Ostrov, belonging to phase III.

The Kodjadermen-Gumelnița-Karanovo VI culture occupies a significantly larger territory: Thrace, North-Eastern Bulgaria, Muntenia, and part of Dobrudja (minus the region of the Varna culture).¹¹ The best-known settlement types are tells, but besides those, open settlements and cave settlements have also been discovered. Changes in settlement density can be demonstrated using data on settlement numbers during each phase of the development of the culture by region. They are given in [Table 9.1](#) based on data published by V. Voinea (Romania),¹² H. Todorova (Bulgaria),¹³ and B. Erdoğu (Turkish Thrace).¹⁴ In the

northernmost region, the south-eastern part of Romania, 43 settlements have been discovered from phase A1 of the Gumelnita culture, 38 settlements from phase A2, and 18 settlements from phase B1. In North-Eastern Bulgaria, phase I of the Kodjadermen-Gumelnița-Karanovo VI culture is represented at 12 tells, phase II at 13 tells, and phase III at 10 tells, while the end of the third phase is found at five. In Thrace and the Rhodope mountains (Bulgaria) phase I is found at six tells, phase II at 13 tells and phase III at 18 tells, with the end of the third phase represented at 10. The 4th phase of the culture (which can also be taken as the beginning of the Transitional period to the Bronze Age) is known only to the south of the Balkan mountains, discovered at the underwater settlement at Sozopol (the Black Sea region of Thrace)¹⁵ and possibly also in the settlements at Banyata¹⁶ and Chataalka (Fig. 9.2)¹⁷ (West Thrace) and in the Rhodope mountains: the Yagodinska Cave,¹⁸ Haramiyska Dupka,¹⁹ and Tatul²⁰ (Fig. 9.1.3). The least amount of information is available for the region of Turkish Thrace. There are few settlements, a total of five, and as far as can be determined by artefacts collected from the surface, they cover significantly smaller areas than the settlements from preceding periods in the same region. They belong to phase III and probably phase IV (Tilkibumu²¹).

Table 9.1. KGKVI settlement counts by phase and region.

	<i>Phase I</i> <i>KGKVI/</i> <i>Gumelnița</i> <i>A1</i>	<i>Phase II</i> <i>KGK VI/</i> <i>Gumelnița</i> <i>A2</i>	<i>Phase III</i> <i>KGK VI/</i> <i>Gumelnița</i> <i>B1</i>	<i>Phase IV</i>
Romania	43	38	18	
North-east Bulgaria	12	13	10	
Thrace and the Rhodope Mountains	6	13	18	6
Turkish Thrace			4	1

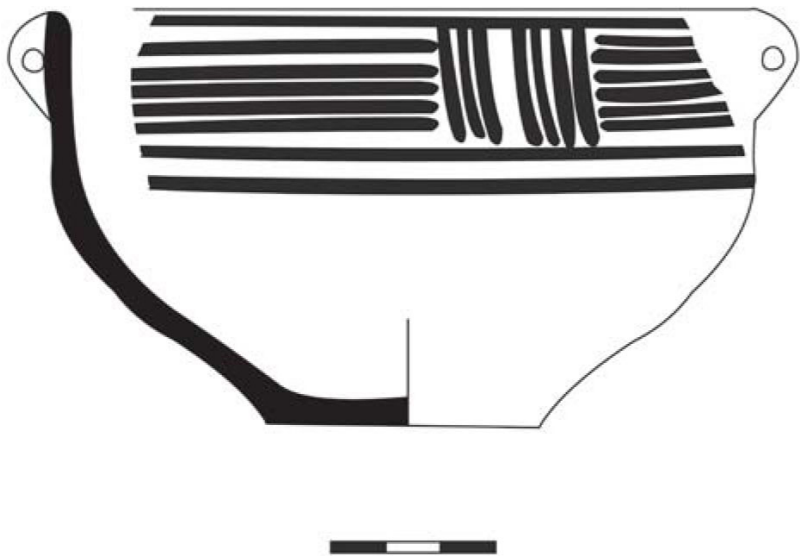


Figure 9.2. Ceramic vessel ($d_{max} = 12.8$ cm) from level I at the Chatalka settlement mound.

The three compendious research works from which the cited data have been taken present different stages in the study of the culture. H. Todorova's work represents a considerably earlier stage, as it was completed in the early 1980s. The current total

number of settlements from Bulgaria is significantly greater, as new discoveries have been made since the publication of H. Todorova's research. However, the finds from those as well as the finds from most of the settlements presented by H. Todorova, particularly from Thrace, have not been published, which makes it impossible to account for the phases of the culture at each site. In this sense, rather than comparing the total number of settlements of the culture per region across the three regions under consideration, the presented data allow the examination of the changes by phase within each region separately.

V. Petrova's dissertation, focussing on this culture's ceramics from Thrace, proposes a slightly different and more detailed periodisation.²² It divides the Karanovo VI culture into three phases, with the first two having two sub-phases each and the third having three sub-phases. While H. Todorova describes 21 settlement mounds from Thrace as representing the culture, V. Petrova describes 38. V. Petrova's research determined phases of the culture only for the sites from which she processed the pottery herself. The rest are listed as "probably belonging" to one of the phases. According to her definite classifications, nine settlements belong to phase I, 12 to phase II and 25 to phase III. If we take the "probables" into account as well, some of which are included in H. Todorova's study, nine settlements belong to phase I, 17 to phase II and 31 to phase III. In both cases, there is an increasing trend in the number of settlements from phase I through to phase III, *i.e.* a broadening of the initial data does not lead to a substantial change in the general results.

It can be seen from these data (regardless of the problems related to precise synchronisation of the internal stages of the culture according to the periodisation schemes adopted in Bulgaria and Romania) that there is a clear trend towards a decrease in the number of settlements in the northern regions of the culture and an increase in the southern regions. Settlements from the 4th and last phase of the culture have only been found in Thrace and the

Rhodope mountains. The gradual change in the density of the settlement network most likely reflects a gradual north–south migration of the population. The reasons that caused it are apparently complex: climate-related – a gradual rise of the level of the Black Sea and of underground waters – and social and economic, brought about by the climate-related factors. The appearance of settlements during the final stages of the culture in Turkish Thrace, a region without settlements dating to the earlier stages, is particularly indicative from the point of view of confirming the hypothesis of a southward population migration. These settlements are small in area and apparently inhabited for a short time, from which we can conclude that the population that built them did not stay here for long and most likely continued migrating to the south.

The Krivodol-Sălcuța culture spreads across the territories of Oltenia and Banat, West Bulgaria, East Serbia, and part of Macedonia.²³ The majority of its settlements are situated on high plateaus, but there are also open settlements as well as settlements in caves. It is a continuation of the Gradeshnitsa-Slatino-Dikilitash and Vinča cultures but the transition stage between them is virtually unknown, even though the continuity connection is indisputable.²⁴ The general opinion adopted in the literature is that Krivodol-Sălcuța is synchronous to the Kodjadermen-Gumelnița-Karanovo VI culture,²⁵ but this statement is not quite correct. Its early stages are known only from settlements in North-West Bulgaria and the Upper Struma valley: Dyakovo, Peklyuk, Devetashkata Peshtera, Zaminets A–B and Telish-Lîga.²⁶ As far as can be judged from the pottery of this early stage, it is synchronous to the end of the second and the third phase of the Kodjadermen-Gumelnița-Karanovo VI culture. There is no evidence regarding settlements synchronous to the first phase. The reasons for this are most likely subjective; those synchronous to the first phase of Kodjadermen-Gumelnița-Karanovo VI are most likely Vinča D, the final layer of Dikilitash, and some of the

material from the settlement at Gradeshnitsa, which are considered as belonging to the preceding cultures. The second stage of the evolution of Krivodol-Sălcuța is also known only from the territory of North-West Bulgaria – the settlements Zaminets C and Krivodol.²⁷ It is most generally synchronous to the third phase of Kodjadermen-Gumelnița-Karanovo VI. From the third stage, known from the complexes of Galatin and Sălcuța I-IIc, there are settlements in Oltenia, North-West Bulgaria, East Serbia, and the Upper and Middle Struma river valley.²⁸ The culture reached its greatest territorial extent during the 4th and final stage, explored in Sălcuța III,²⁹ Rebarkovo,³⁰ Vaksevo-Skalet,³¹ Kolarovo,³² Dolno Dryanovo,³³ Crnobuki,³⁴ and Suvodol-Šuplevec.³⁵ This final stage is synchronous to phase IV of Kodjadermen-Gumelnița-Karanovo VI. That is to say that the culture extended territorially to the south and to the north and north-west during its separate chronological stages. The absence of finds in the territory of the Middle and Lower Struma during the first two stages is intriguing, especially when taking into account that the Krivodol-Sălcuța culture inherits to a large degree the traditions of Gradeshnitsa-Slatino-Dikilitash. The interruption of the habitation in the region of Turkish Thrace appears similar and is approximately contemporaneous. It is possible to surmise that, as a result of developing climate change, the population from the southern territories of Gradeshnitsa-Slatino-Dikilitash (to the south of the Kresna Gorge – with respect to climate, the boundary between the Mediterranean and Middle European climates) migrated north to northern regions of the culture having more favourable conditions for habitation, including territories occupied by a population carrying the Vinča culture. During this supposed mixing of populations from two different cultures, but close in their characteristics, the traditions of Gradeshnitsa-Slatino-Dikilitash were preserved to a greater degree in pottery production, which can be traced most in the decoration of fine pottery with graphite drawings. Later, during the final stage of the evolution of the

Krivodol-Sălcuța culture, and as a result of a new migration, this time southward, the settlements of the late stages appear.

Evidence for the penetration of a population from the North Black Sea steppes into the territories of the cultures of Varna, Kodjadermen-Gumelnița-Karanovo VI, and Krivodol-Sălcuța

The influx of a population from the steppes into the territories of the cultures under consideration in the Balkans was a long process. It can be traced by the spreading of cultural elements specific to the stock-breeding population into areas occupied by farmers.³⁶ The archaeological evidence collected so far allows distinguishing several stages in the evolution of this process of penetration or migration. These are archaeologically discernible stages, and we cannot claim that any was a separate wave of migration.

Stage 1. The earliest evidence for the presence of separate small groups of people from the North Black Sea steppes dates from the end of the Late Chalcolithic cultures *Varna and Kodjadermen-Gumelnița-Karanovo VI*. This is the time of the most recent Eneolithic layers at the tells in the region of the Lower Danube and Thrace. H. Todorova calls it “the very end of the third phase of the Late Eneolithic”, in Romania this is the stage of Gumelnița A2 and Cucuteni A3. In some but not all settlements where this stage has been observed, besides pottery typical of the local cultures, finds include individual vessels or fragments of vessels made from clay mixed with shells, *i.e.* “Type C” pottery. They differ both in technology and in shape and ornamentation from the pottery of the cultures in whose environment they occur.

Ceramics tempered with shell are traditional for the Sredny Stog and Khvalynsk cultures, whose population has a stock-breeding economy, and is initially found only there (Fig. 9.1.1). During the Tripol’ye B1–Cucuteni A3 stage, sites appear on the middle reaches of the river Bug where ceramics typical of the

Tripol'ye-Cucuteni culture are found together with ceramics typical of the culture of the stock-breeders.³⁷ Approximately at the same time, individual vessels tempered with shells or fragments of such vessels are found in settlement strata of the Kodjadermen-Gumelnița-Karanovo VI culture (Fig. 9.1.2). Such pottery has been found at tells at Carcaliu, Hârșova I and Năvodari (in Constanța County, Romania), Pietrele-Măgura Gorgana (on the north bank of the Danube in Romania), Kozareva Mogila (West Black Sea Coast near the city of Burgas, Bulgaria) and Rupkite-Tepeto (in Bulgarian Thrace) (Fig. 9.1.2).³⁸ In all of these settlements the finds are among assemblages that belong to the end of phase III of the Kodjadermen-Gumelnița-Karanovo VI culture (according to the periodisation used in Bulgaria) or the end of phase A2 of Gumelnița (according to the periodisation used in Romania). They can be interpreted as evidence of contacts with the stockbreeders from the steppes, rather than large-scale migrations. During this and preceding periods (according to E.N. Chernykh's comparative analysis), copper from Thrace was exported north-east to the Middle Volga, and is found at sites belonging to the Cucuteni-Tripol'ye, Sredny Stog, and Khvalynsk cultures.³⁹ Metal is valuable and it is normal for it to travel such long distances through exchange, transferred from hand to hand or carried by separate small groups for trading. However, the same cannot be said for pottery made from clay mixed with shells. Compared to the pottery of the Kodjadermen-Gumelnița-Karanovo VI culture, it is considerably inferior both functionally and aesthetically, which eliminates any simple conjecture that it reached the Lower Danube and Thrace as a result of trading exchanges. It is therefore important to look for an answer to the question of how this pottery appeared in these regions: it could have been carried there and it could have been made there. One possible answer is to state that in either case this was done by a population that carried these pottery-making traditions. In this regard, two vessels from the most recent excavation seasons at Kozareva Mogila are of interest.

They are made from the same clay as the traditional local ware, but their shapes are different from the local types and are close to the shapes of Sredny Stog and Khvalynsk pottery. They were obviously made locally by people carrying a pottery-making tradition foreign to the area who lived in this settlement on some occasion.⁴⁰ It is hard to say whether these were separate small groups (expeditions) which reached Thrace where the copper mines were located, or larger groups settling in regions traditionally inhabited by farmers, and living side by side with them but not in the same settlements. The available finds are too few to prove one or the other conjecture, but they do prove a presence of individual carriers of a pottery-making tradition from the North Black Sea steppes. No such finds are known from the region of North-East Bulgaria, even though other settlements of the same period have been excavated to a significant extent (the tells at Hotnica, Russe, Golyamo Delchevo, and others), but it is possible that they were simply not noticed, as they have a modest appearance and may have been missed if the pottery fragments were not all examined specifically to determine the kind of temper used in their production.

During this period in the region of the *Krivodol-Sălcuța culture* there are no known finds of pottery made of clay tempered with broken clam or snail shells, which could be taken as direct evidence of penetration by steppe tribes. The only assemblage that can be interpreted in this way is from a long-explored house from a high-ground settlement at Ohoden,⁴¹ in the district of Vratsa. Unfortunately, some of the vessels appear to be of different age and they may belong to two consecutive construction layers that were inadvertently mixed. Six small cups with two vertically placed handles each have been found there together with the rest of the vessels. They are all made in the same way and have similar sizes and decoration and are most likely contemporaneous (Fig. 9.3). They only differ in the shapes of their bases: three are oval, one is pointed, and one concave. If we accept that all published

vessels from the building indeed come from the same assemblage and the leading form for establishing their relative chronology is an amphora-like vessel with convex shoulders, then these are the earliest vessels with pointed or oval bottoms in the region of this culture and their presence can be interpreted as an influence of the traditions of the stockbreeders.

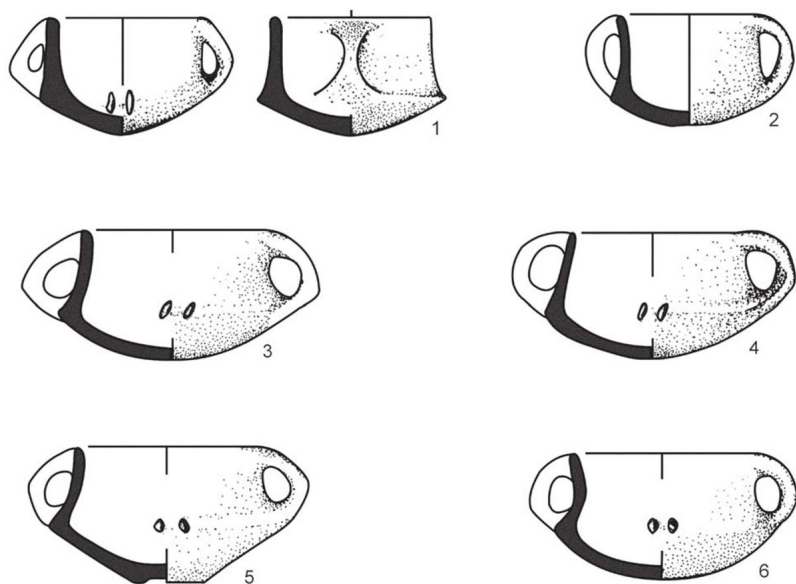


Figure 9.3. Pottery from the Ohoden settlement. 1. $d_{max} = 7.4$ cm; 2. $d_{max} = 6.6$ cm; 3. $d_{max} = 9.8$ cm; 4. $d_{max} = 9.2$ cm; 5. $d_{max} = 10.0$ cm; 6. $d_{max} = 27.8$ cm; 7. $d_{max} = 9.1$ cm.

Stage 2. During the next chronological period – the 4th phase of Kodjadermen-Gumelnița-Karanovo VI and the 4th stage of Krivodol-Sălcuța – a significant change to the topographical characteristics and the density of the settlements is seen as well as in the appearance of the pottery. This is the time of the spreading of “zoomorphic sceptres” (Fig. 9.1.3).

In the region of the Kodjadermen-Gumelnița- Karanovo VI and Varna cultures, most tells were abandoned. The settlement at Sozopol⁴² is from this period, and probably also the uppermost

layers of the tells at Banyata and Chatalka. High altitude settlements appeared in the Rhodope Mountains (the Yagodinska Cave, Haramiyska Dupka, Tatul (Fig. 9.1.3) and the finds from them are also evidence of a continuation of the traditions of the classical Late Chalcolithic cultures. There is a bone spoon among the finds from Sozopol that is of particular interest.⁴³ The end of its handle is very carefully shaped as the head of an animal, bearing a striking resemblance to the shape of the stone zoomorphic sceptres (Fig. 9.4). Besides these settlements, an isolated discovery of a grave (Reka Devnya)⁴⁴ and the discoveries of zoomorphic sceptres from Casimcea,⁴⁵ Răževo⁴⁶ and Drama⁴⁷ can also be related to this period. Two graves at Kjulevča, one of them also yielding a sceptre but of a different type, are probably related to the same period as well.⁴⁸

The relation between the chance finds of sceptres, the above-mentioned graves, and the settlements from the early stage of the Cernavoda I–Pevets culture is unclear. They are probably synchronous, but this cannot be proved with certainty. The ceramics from the settlements of the Cernavoda I–Pevets culture have some common features with respect to shape with the ceramics from the settlement at Sozopol, but there are also a number of differences and this does not permit exact synchronisations. The chronological relation of the settlements in the Rhodope Mountains, such as the Yagodinska Cave and Haramiyska Dupka, with the settlements of the Cernavoda I–Pevets culture is also unclear. The settlements in the Rhodope Mountains, as well as the settlement at Sozopol, have preserved the pottery-making traditions of the Kodjadermen–Gumelnița–Karanovo VI culture. There are radiocarbon dates from the Yagodinska Cave (Bln-2247: 4960 ± 50 BP; Bln-2249: 5000 ± 50 BP; Bln-2250: 5060 ± 50 BP; Bln-2389: 5265 ± 50 BP) and Haramiyska Dupka (Bln-3340: 5240 ± 50 BP; Bln-3341: 5250 ± 60 BP; Bln-3342: 5150 ± 50 BP; Bln-3343: 5190 ± 60 BP; Bln-3344: 5030 ± 80 BP; Bln-3345: 5150 ± 50 BP). They are earlier than the

available dates from settlements of the Cernavoda I–Pevets culture, such as Hotnica–Vodopada, for example (Bln-3680: 4830 ± 60 BP; Bln-3681: 4830 ± 60 BP; Bln-3682: 5110 ± 50 BP; Bln-3683: 4950 ± 60 BP; Bln-3684: 4950 ± 60 BP; Bln-3685: 4890 ± 60 BP), representing the developed stage of the culture. There are no dates from settlements such as Shemshevo–Klise Bair, supposed to represent the earliest stage of the Cernavoda I–Pevets culture on the basis of the typological features of the ceramics.⁴⁹

Life in the traditionally inhabited high altitude settlements continued in the region of the Krivodol–Sălcuța culture. This is the stage known from the settlements Sălcuța III,⁵⁰ Rebarkovo,⁵¹ Vaksevo-Skaletu,⁵² Dolno Dryanovo-Gradishte and Ilinden-Klisura (Fig. 9.1.3).⁵³ Pottery made from clay tempered with clam or snail shells appeared here for the first time during this period, but in small quantities and only in settlements to the north of the Stara Planina. The territory of the culture, as far as that can be determined from the known settlements, spread farther to the south, to regions to the south of the Kresna Gorge, along the Middle Struma (Kolarovo)⁵⁴ and probably the Lower Struma as well, where settlements from the earlier stages of the culture are absent. Two sceptres at Sălcuța and Suvodol-Šuplevec are probably related to the same period.⁵⁵

It is remarkable that there are many common characteristics shared by the pottery from the known settlements in the region of Krivodol–Sălcuța–Bubanj-Hum (Rebarkovo, Vaksevo-Skaletu, Crnobuki), on the Black Sea coast of Thrace (Sozopol), and in the Rhodope mountains (the Yagodinska Cave, Haramiyska Dupka, Tatul).⁵⁶ Similar features are also found in the pottery of the Rachmani culture.⁵⁷

Stage 3. The next discernible chronological layer where separate stages can be distinguished is the time of the Cernavoda I–Pevets and Galatin–Sălcuța IV–Herculane II–III cultures. In both regions, the settlements are located at high altitude or in caves. The amount of “Type C” pottery in settlements grows (Fig. 9.1.4).

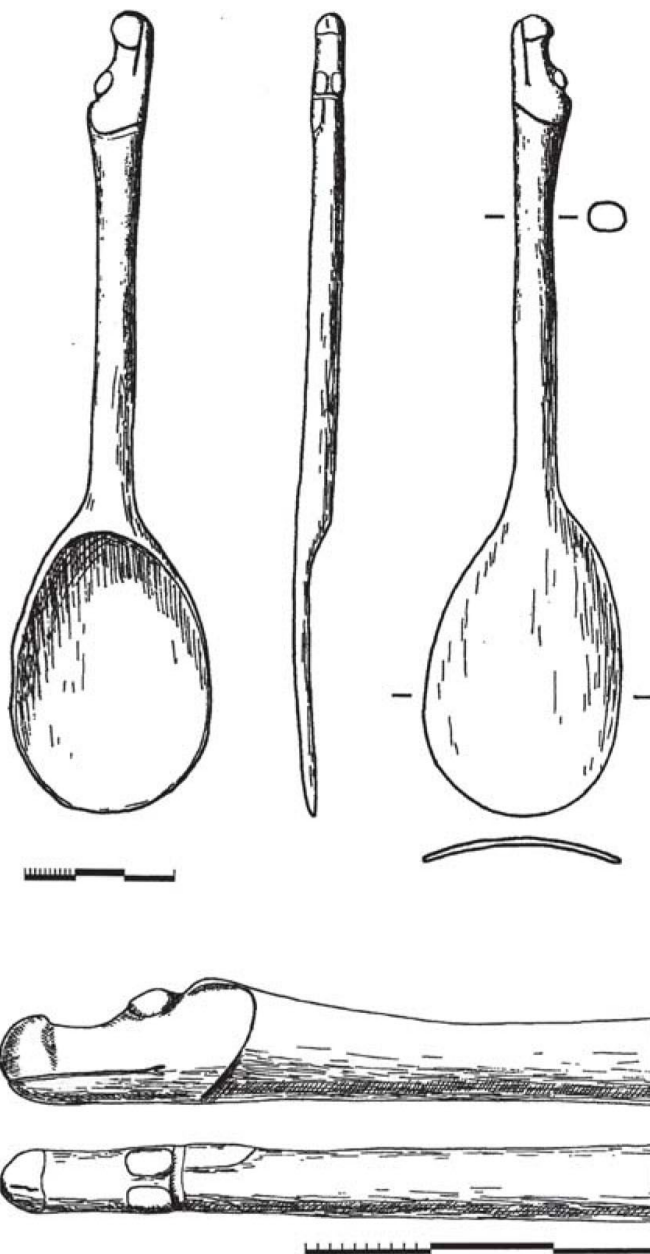


Figure 9.4. Bone spoon from the Eneolithic settlement at Sozopol (after Dimitrov 2007, fig. 2).

The territory of the Cernavoda I-Pevets culture partially

coincides with the territories of the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures, but without Thrace and the Rhodope Mountains.⁵⁸ The traditions of the preceding Chalcolithic cultures are difficult to trace and as far as can be determined by the increased quantities of “Type C” pottery (made from clay mixed with clam or snail shells), the size of the immigrant population that carried this tradition of pottery-making also grew. “Type C” pottery is missing and more painted pottery is found in some of the settlements, such as Shemshevo-Klise Bair⁵⁹ in Central-North Bulgaria, which have been determined to be older because of this characteristic, but there is no stratigraphic proof of this. Generally speaking, there are few finds within the culture that we can accept as evidence of a continuation of the traditions of preceding periods: several ceramic forms and vessels with painted decorations.⁶⁰ The pottery of the Cernavoda I-Pevets culture is very different both from that of Kodjadermen-Gumelnița-Karanovo VI and from that of the steppe cultures. It should follow from this that its formation took place either in the territory it occupied as a result of the mixing of local and immigrant populations or in the north-east, in the eastern territories of the Cucuteni-Tripol’ye culture, where a population from the steppes arrived and mixed with the local population from the two preceding stages. The former is supported by finds of “Type C” pottery from the end of the Kodjadermen-Gumelnița-Karanovo VI culture and particularly of the two vessels from the burnt layer at Kozareva Mogila, which are made from the clay used for the local Eneolithic pottery but have shapes characteristic of the arriving population. Taking into account that demographic density is low and the traditional economies of the existing and arriving populations require different places of habitation, it is possible that the process of mixing, or rather of settling of the stockbreeders, took centuries without leaving archaeologically detectable traces.

In the west, in the region of the Galatin-Sălcuța IV-Herculane

II–III culture,⁶¹ traditions were preserved to a much greater degree, but the changes were significant. The traditional locations of settlements were preserved. Pottery with clam or snail shells is found only in the settlements to the north of the Stara Planina and in much lower quantities than in the settlements of the Cernavoda I-Pevets culture.

The next chronological stage is the time of the Early Bronze Age. Continuity can be seen between the Cernavoda I-Pevets and Cernavoda III-Ezerovo cultures as well as between the Galatin-Sălcuța IV-Herculane II–III and Magura-Coțofeni cultures. Settlements on the same tells appeared in Thrace after a long hiatus, but the characteristic features of their material culture differed substantially from the Eneolithic. There is no evidence regarding the origins of this population.

There are many explored burial mound necropolises from this period, known in general as the Yamna culture (the Pit Grave culture).⁶² It is assumed that they appear as a result of the arrival of a large population from the steppes of the North Black Sea.⁶³ There are specific characteristics of the burial ritual and particularly the burial inventory in the areas of each of the synchronous cultures.⁶⁴ Ceramic vessels are characteristic of the local Early Bronze Age cultures and there are no finds that can be interpreted as different from the local ones, *i.e.* there are no imports. This allows the hypothesis that these necropolises do not belong to a population that migrated here during the Early Bronze Age, but to the heirs of the stockbreeders that arrived here at the end of the 5th millennium.

Conclusion

A chronological arrangement of the finds from the end of the 5th millennium and the 4th millennium shows that a small part of the population of the Varna, Kodjadermen-Gumelnița-Karanovo VI and Krivodol-Sălcuța cultures remained in the traditionally inhabited territories, to a greater degree in the eastern regions and to a

lesser degree in the west.

There are clear proofs that a population with a culture similar in its characteristics to cultures such as Hvalin and Sreden Stog (carrier of the tradition of making pottery with shells in the clay mixture) enters the regions of these cultures from the north-east early enough for it to happen while their population is still inhabiting these areas – the end of phase III /A2 of Kodjadermen-Gumelnița- Karanovo VI. This first recognised penetration of a population that is foreign to the local population cannot be called a destructive invasion, since the settlements of the farming cultures continue to exist during that time. The statement, made multiple times in the literature, regarding the destruction by fire of the latest layers in tells as proof of attacks by foreign tribes is not quite correct. In Kozareva Mogila, for example, above the uppermost burned layer, individual unburned Late Eneolithic vessels are found here and there. It is difficult to say whether they are evidence of a short-term continuation of life at the settlement. They might be the remains of a ritual performed over the ruins of the burned layer of the settlement mound by the people who survived the fire and resettled to a place nearby (much Eneolithic pottery, including the Late Eneolithic, is found around the settlement mound in the modern cultivated fields). In all cases, however, they are evidence of continued habitation of the place after the fire. An analogous situation has been found at the settlement mound at Karanovo, where, above the uppermost burned layer, a subsequent unburned layer also dating to the Late Eneolithic can be traced at several places.⁶⁵ Besides, there are quite a few burned layers from different stages of the Eneolithic in most of the settlement mounds – there are three such layers in Kozareva Mogila. Even with regard to settlements like the one at Yunatsite,⁶⁶ where there are many finds of people who had died in the fire and were buried in the ruins of the burned layer, one cannot claim that they are burned necessarily by foreign invaders, since there is no clear evidence of their presence. The fires could

be random or caused by antagonistic members of the same tribe. If the fires are the acts of invaders who burned the settlements at all tells in a relatively short period of time, then they would have settled the area and left some traces; however, there are no such traces in the region of Thrace.

What can be surmised, on the basis of the evidence about the changes in the numbers of settlements from the separate stages of the evolution of the Kodjadermen-Gumelnița-Karanovo VI culture, is that the population gradually migrates south – the settlements to the north of Stara Planina and especially to the north of the Danube gradually become fewer during phases II and III, while those to the south of Stara Planina become more, and even in the region of Turkish Thrace, where settlements from the early stages of the culture are absent, small settlements (by area) appear, probably with short-lived habitation. There are very few settlements from the end of phase III and fewer still from phase IV, which is also proof of a gradual decrease in the local population size. This is more likely caused by a gradual population spread or migration towards regions more favourable to habitation, rather than by physical destruction. Even if we suppose that the population of the regions of the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures was afflicted by a deadly epidemic similar to plague, for example (such epidemics are probable after contacts with immigrants from distant regions),⁶⁷ the picture of depopulation would not appear in the same way – epidemics spread significantly faster than the observed processes of depopulation and would affect the region of the Krivodol-Sălcuța culture, as well. Besides, even after pandemics parts of the affected populations survive.

It is more logical to suppose that a significant part of the population carrying the cultures of Varna and Kodjadermen-Gumelnița-Karanovo VI, driven by slowly developing climate changes, which also brought the population from the North Black Sea steppes to this region, migrated towards regions more suitable

for habitation. The change in the density of settlements during the consecutive stages of the evolution of the culture – a decrease in the number of settlements in the northern regions and an increase in the southern regions, the appearance of settlements in Turkish Thrace, as well as the fact that there are settlements from the final 4th phase of the evolution of the culture only in Thrace and the Rhodope mountains, all support a gradual migration south. The territory of Krivodol-Sălcuța also extends to the south during the same time, also to regions that were not inhabited during preceding stages. It is hard to say what geographical extent this migration reached, but it apparently did not happen as a short-term move. As far as can be judged by the small areas of the settlements from the end of the Late Eneolithic in Turkish Thrace, the spreading population apparently did not stay there for long, but likely continued on to other regions.

Anatolia is one such assumed region. Metallurgical production based on mining starts there during the 4th millennium. Its beginning is hard to explain only from the traditions of copper processing from the ninth to the 6th millennium.⁶⁸ Even if there is no clear proof of it, it is quite probable that separate contingents of population from the region of the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures triggered the development of metallurgy of the Late Chalcolithic (4th millennium) in Anatolia and the Middle East. This is a logical explanation for its quick development precisely during the time when development of metallurgy in the Balkans virtually stops, as well as for the great changes in the social and economic characteristics of the 4th millennium population in these regions. The tracing of such a process of migration which lasted decades and even hundreds of years (the time of the third and 4th phases of the evolution of the Kodjadermen-Gumelnița-Karanovo VI culture) is difficult, since the characteristics of the culture change over time and in the course of the migration. It is also difficult to find clear “imports”, similar to the “Type C” pottery for the spreading stockbreeders, which would

mark the way.



Figure 9.5. Ceramic vessel ($d_{\max} = 35.9$ cm) from the settlement at Durankulak.

Objects that can be considered markers or indicators of population movement are the gold ring idols. Among the 5th- and 4th-millennia BC objects made of rare materials, they are some of the most frequently occurring finds with a more specific shape.

They have been discussed multiple times in the literature, both regarding the semantics of their shape and regarding their chronology.⁶⁹

Their earliest appearance is in the region of the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures.⁷⁰ Their shape was apparently an important symbol for this population, as it is also found on ceramic vessels (Fig. 9.5). The greatest number of finds of gold ring idols come from the region of the Kodjadermen-Gumelnița-Karanovo VI and Varna cultures. They occur in settlements as well as in necropolises, as single finds and hoards; there are 28 ring idols just from the Varna necropolis.⁷¹ Hoards found in settlements have been discovered in the settlement mounds at Hotnica⁷² and Sultana.⁷³ Ring idols are present at almost all sites where any kind of gold objects have been found and often these are the only gold objects. After the time of those cultures, ring idols have not been discovered within the same areas, whether from Cernavoda I-Pevets sites or from the Early Bronze Age, even though gold from the Early Bronze Age has been found; nor have objects of the same shape but made of a different material, such as silver, lead, or ceramics, been discovered.

There are only two chance discoveries of gold ring idols from the region of the Krivodol-Sălcuța culture: from Sofronievo⁷⁴ and Mursalevo.⁷⁵

The Carpathian region is another area with ring idol finds. They belong to the Tiszapolgár culture (end of the 5th millennium BC) and most of all to the Bodrogkeresztúr and Vajskahunyadhalom cultures (the first half of the 4th millennium BC – the time of the 4th, final phase of the Krivodol-Sălcuța and Kodjadermen-Gumelnița-Karanovo VI cultures and the chronologically following Cernavoda I-Pevets and Galatin-Sălcuța IV-Herculane II-III cultures).⁷⁶

Ring idols have been found in the Aegean as well, including schematic depictions of a ring idol on a vessel from Dimini from the 5th millennium,⁷⁷ as well as gold, silver, and lead ring idols

from the 4th and 3rd millennium BC.⁷⁸ Anatolian ring idol finds are particularly interesting. Most can be dated to no earlier than the 4th millennium BC. There are gold, silver, and lead examples, as well as a vessel with a ring idol depicted on it.⁷⁹ The only find that might possibly have an earlier date is the “Trabzon hoard” of adornments with an unclear discovery context.⁸⁰ The gold ring idols as well as the gold discs and beads and the carnelian beads are very similar in shape to the finds from the Varna necropolis. There is also a bigger sickle-shaped gold pendant in the hoard. A pendant with an analogous shape, but made from a boar tusk, was found in burial three of the Giurgiulești necropolis.⁸¹ It has a naturally sickle-like shape. Rows of little holes with small copper rings hanging from them are bored along the long sides, which increases the resemblance to the Trabzon pendant, decorated with rows of little convex dots. There are many gold adornments at the Giurgiulești necropolis, a site which chronologically belongs to the end of the Kodjadermen-Gumelnița- Karanovo VI culture.

The ring idols from İkittepe, initially dated to the end of the Early Bronze Age, have been much discussed in archaeological literature.⁸² This dating has been disputed for the early strata of the settlement and some of the burials in the necropolis and an earlier dating has been proposed, assigning them to the Late Chalcolithic.⁸³ C. Lichter compares the İkittepe and Varna necropolises, the two necropolises on the Black Sea Coast richest in metal grave goods, revises and augments the arguments for an earlier dating of some of the İkittepe burials to the first half of the 4th millennium, and concludes that the few common elements do not give grounds to assume a direct contact between these two Black Sea regions.⁸⁴

The ring idol finds from the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures from the Balkans and the analogous Anatolian examples placed in the Late Chalcolithic obviously have substantial chronological differences and thus the resemblance between them cannot be explained by direct contacts.

The Anatolian Late Chalcolithic sites where numerous metal objects have been found, such as Ilıpinar and İkiztepe, should be synchronous with the cultures of the period following the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures and preceding the Early Bronze Age cultures. This is the period when the earliest daggers appear both in Anatolia and in Europe.⁸⁵ For North-East Bulgaria, this is the Cernavoda I -Pevets culture. As an addition to the arguments for dating some of the İkiztepe finds to this period, it is possible to point to the relatively exact analogy between the vessel from burial 581 at İkiztepe and the ceramics from the Hotnica-Vodopada settlement (Fig. 9.6). Ring idols still occur in the Aegean and Anatolia during the Early Bronze Age, unlike in the area of their initial occurrence in the Balkans, from which there are no finds, since the traditions of the Varna and Kodjadermen-Gumelnița-Karanovo VI Eneolithic cultures were interrupted.

Marble rhyta that occur as individual finds from the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures, as well as in the Aegean during the Late Chalcolithic and the Early Bronze Age, are another indicator of population movement.⁸⁶ The specifics of the shapes of anthropomorphic plastic art from İkiztepe indicate relations with the Balkans as well.⁸⁷ Pottery from Dündartepe and Tekeköy found and described by L. Thissen, which resembles that of Kodjadermen-Gumelnița-Karanovo VI and Cernavoda I -Pevets in shapes and technology, can also be considered to support the hypothesis of a population movement from the Balkans into Anatolia.⁸⁸ There are Dündartepe and Tekeköy ceramic fragments tempered with shells, i.e. "Type C" pottery, as found at some settlements of the third phase of Kodjadermen-Gumelnița-Karanovo VI, including some in Thrace (Fig. 9.1.2). The construction of fortified settlements on Aegean islands implying demographic expansion, can also be viewed as an indirect argument for the participation of a Balkan population in the formation of the cultures of the Late Chalcolithic and the Early

Bronze Age there.

The other possible direction of migration is to the west. From this point of view, it is interesting to consider the evidence regarding the spread of axes-adzes, which chronologically belong to the end of the first and second stages discussed here. They represent the final stage of the Balkan development of copper metallurgy. They are very few in the region of the Kodjadermen-Gumelnița- Karanovo VI culture, where traditionally inhabited settlements were abandoned.⁸⁹ They are significantly more numerous in the region of the Krivodol-Sălcuța culture, which expands to the north-west during the last phase of its development and during the Sălcuța III and Sălcuța IV stages, as well as to the west of Krivodol-Sălcuța in the region of the Carpathian Mountains, the Middle Danube, and Transylvania.⁹⁰

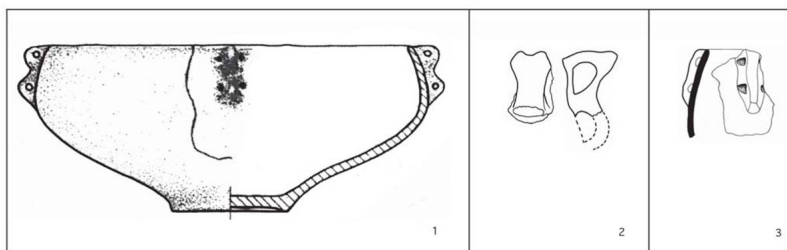


Figure 9.6. Pottery from: 1. *İkiztepe*, burial 582 (after Lichter 2008, table 5); 2. *Shemshevo– Klise Bair* (after Илчева 2009, table 63, no. 9); 3. *Pevkacia–Magula* (after Weisshaar 1989, table 134).

Notes

1 Todorova 1986, tab. 35.

2 Boyadzhiev 1992b.

3 Vasil'ev 2003, 73.

4 Georgieva 1992; Georgieva 2005.

5 Govedarica 2004, 260–76; Merpert 1982, 326–9.

6 Thissen 1993, 212–13.

7 Danilenko and Shmaglii 1972; Dergachev 2000; Gimbutas 1977; Merpert 1982; Todorova 1986, 222–7.

8 Georgieva 2005; Häusler 1981; Häusler 1982; Rassamakin 1994;

Rassamakin 1999.

9 Draganov 1998; Georgieva 2003; Todorova 1986, 33, 121–3.

10 Georgieva 2012b.

11 Todorova 1986, 33, 107–13.

12 Voinea 2005, 132–4.

13 Todorova 1986, 88.

14 Erdoğu 2001, 219.

15 Dimitrov 2007a; Draganov 1998, 214–19.

16 A cup with two handles reaching above the rim from this settlement is published, which is grounds to believe that the 4th phase of the culture is also represented here (Todorova 1986, photo 26).

17 Only one vessel from this settlement (Fig. 9.1) leads to the conclusion that the 4th phase of the culture is also represented here. I am grateful to M. Popova for the provided picture.

18 Avramova 1992.

19 Vălchanova 1983; Vălchanova 1984.

20 Ovcharov *et al.* 2008.

21 Özdoğan 1982.

22 Petrova 2004, 19–24.

23 Berciu 1961; Tasić 1979; Todorova 1986, 34–5, 79–85.

24 Georgieva 2012a, 180–1.

25 Todorova 1986, tab. 35.

26 Georgieva 2012a, 180; Merkyte 2005.

27 Georgieva 2012a, 178, 180.

28 Georgieva 2012a, 178, 180.

29 Berciu 1961, 290–314.

30 Georgieva 1994.

31 Chohadzhiev 2001, 195–209.

32 Pernicheva 1995.

33 Bozhkova and Todorova 2009; Bozhkova and Todorova 2012.

34 Simoska *et al.* 1976.

35 Garašanin and Simoska 1976.

36 Dodd-Opritescu 1982; Georgieva 1991a; Georgieva 1992.

37 Chernykh 1982, 192.

38 Georgieva 2003, 219; Georgieva 2005, 152–4; Voinea 2005, 138.

39 Chernykh 2010.

40 See Georgieva *et al.* this volume.

- 41 Georgieva 2012a, 28, tabs 10–12; Nikolov 1968.
- 42 Draganov 1998.
- 43 Dimitrov 2007a.
- 44 Mirchev 1961.
- 45 Popescu 1937/40.
- 46 Detev 1960b.
- 47 Ghetov 1980.
- 48 Vážarova 1986; Georgieva 2005, 148, fig. 1, nos 1–3.
- 49 Görsdorf and Boyadzhiev 1996.
- 50 Berciu 1961, 290–312.
- 51 Georgieva 1994.
- 52 Chohadzhiev 2001.
- 53 Todorova N. 2014.
- 54 Pernicheva 1995.
- 55 Govedarica 2004, 240, 242.
- 56 Georgieva 2005, fig. 3, 6, 7.
- 57 Weisshaar 1989.
- 58 Morintz and Roman 1968; Georgieva 1991a; Ilcheva 2009.
- 59 Ilcheva 2009, 71–8.
- 60 Georgieva 1991a; Ilcheva 2009, 71–8.
- 61 Georgieva 1993; Roman 1971; Tasić 1979.
- 62 Panayotov 1989b.
- 63 Gimbutas 1961; Merpert 1965; Panayotov 1989b.
- 64 Georgieva 1991b.
- 65 Nikolov and Petrova 2013.
- 66 Mazanova 1992; Matsanova 2000.
- 67 There are numerous examples of abrupt decreases of population sizes from the Middle Ages (Manolova-Nikolova 2004; Matanov 2004, 50–58).
- 68 There are no Anatolian finds of massive copper tools or weapons from the 5th millennium. There are many finds from the region of the Varna and Kodjadermen-Gumelnița-Karanovo VI cultures of flat axes, hammer axes, axes-adzes and chisels with clear evidence of having been used for work, rather than made just as status symbols. The hammer axe and the axe-adze from the Ai Bunar mine, heavily worn-out by work, provide an example (Chernykh 1978, 68, fig. 46–7).
- 69 Hansen 2007; Makkay 1976; Makkay 1989; Todorova and

Vaysov 2002; Zimmermann 2007.

70 Andreescu 2002, 69–71; Comşa 1995, 71–3; Todorova and Vaysov 2002.

71 Rusev *et al.* 2010, 25–32.

72 Angelov 1959.

73 Halcescu 1995.

74 Nikolov 1971, 13.

75 Nikolov *et al.* 2015.

76 Makkay 1976; Makkay 1989.

77 Otto 1985, tab. 56, no. 4.

78 Keskin 2011.

79 Keskin 2011, tab. 1.

80 Rudolph *et al.* 1995.

81 Bicbaev 2010.

82 Bilgi 2004.

83 Parzinger 1993, 236.

84 Lichter 2008.

85 Roodenberg 2001, 354–5; Vaysov 1993.

86 Dimitrov 2004.

87 Parzinger 1993.

88 Thissen 1993. The fact that it was discovered when revisiting material from long-finished excavations indicates that similar discoveries may be lying in wait elsewhere.

89 Chernykh 1978, 96.

90 Chernykh 1978, 89–96; Pernicka *et al.* 1993; Schubert 1965.

Kozareva Mogila: A settlement and necropolis in the West Black Sea region

Petya Georgieva, Margarita Popova and Veselin Danov

Introduction

The settlement at Kozareva Mogila and its necropolis are located in the area of the Bay of Burgas, two kilometres south of the town of Kableshkovo and about four kilometres from the modern coastline (42°38'29"N, 27°34'25"E, [Fig. 10.1](#)). According to the physical geography, the settlement falls both within Thrace and the Black Sea region. This binary association is reflected in the specifics of the culture of the population during different periods. The site is located on the route between copper mines (Rosen, Ai Bunar) exploited during the Eneolithic and sites at Devnya, Varna, and Durankulak; *i.e.* the putative Eneolithic age Black Sea corridor for trade of commodities (gold, copper, Mediterranean shells, carnelian, flint stone). A placer deposit of carnelian is known from the vicinity of Kozareva Mogila and the possibility that some of the carnelian decorations from Varna I and Durankulak were made of raw materials coming from this area has been suggested.¹ In 2005, deep tillage north-west of the settlement mound accidentally stumbled upon its necropolis. Eleven burials assigned to the Late Eneolithic and the transitional period to the Bronze Age have been excavated to date.²

The tell of Kozareva Mogila has an apparent diameter of about 110 m and a height of 12 m above the surrounding terrain. It preserves deposits dated to the Early and Late Eneolithic period, the Early Bronze Age (EBA), and the Hellenistic Age. Finds from the Early Eneolithic period demonstrate similarities with the Maritsa culture of Thrace and the Hamangia and Sava cultures of the Black Sea region; but the greatest affinity is with Sava.³ At the present state of research, the Late Eneolithic culture at Kozareva Mogila does not manifest significant inconsistencies with the Kodjadermen-Gumelnița-Karanovo VI and Varna regions.⁴ The vicinity of the settlement mound is presently cultivated. Surface collection of pottery sherds, mostly Eneolithic, suggest that the settlement was not constricted to the mound only but extended beyond, in the same way as its contemporary, the settlement at Pietrele, for example.⁵

The settlement mound

Of consequence to the focus of this symposium and its proceedings, the transition between the Eneolithic and the Bronze Age, are the results of investigations of the topmost Eneolithic stratum. Chronologically, it belongs to the final stage of the Kodjadermen-Gumelnița-Karanovo VI culture.⁶ The entire level was destroyed by fire except for pottery production. Hundreds of vessels (finished and unfinished), pieces of kneaded clay, pottery manufacturing tools, and two pottery kilns were unearthed. One of the kilns lies in the southern sector of the mound, where Hellenistic constructions and modern pits cut into the deposits of this level (Fig. 10.2). Only isolated areas have survived, but no intact buildings. The kiln was found in one of the preserved sections. It features a dug-in fuel chamber and an above-ground upper chamber which, upon discovery, was loaded with pots stacked inside and upon one another.⁷ From this sector, nearby the kiln, come several fragments with crushed shell temper, and a lid with paste paint.⁸

The burnt horizon is preserved better in the northern sector of the settlement mound, allowing for reconstruction of the specifics of construction technology. Excavations exposed two buildings. The walls run north–south and east–west in parallel lines. Both buildings are partially sunken. The eastern building dips *ca.* 70–80 cm below the ancient level (Fig. 10.3). The dug-in area is rectangular (approximate dimensions 7.10 m × 4.80 m). Interpretation of the escarp suggests that it cuts into two of the underlying layers. The poles supporting the walls are found aligned along the periphery of the prepared foundation, driven to 30–40 cm below the floor level. The poles are in two rows, one directly along the vertical wall of the sunken area, and an adjacent second row, resulting in a checkerboard arrangement (Fig. 10.3, nos 2–4). They were likely then entwined with sticks and dressed in a chaff-rich clay mixture. Stones alongside the exterior of the wall, at the level of the beginning of the sunken area, provide additional strengthening of the construction. During destruction of the building in the fire event, some of the stones, together with remnants of the wall, fell into the dipped area (Fig. 10.3, no. 5). Judging by their volume, these likely merely flanked the lower exterior wall, and did not develop in height.



Figure 10.1. Map of the location of the Kozareva Mogila site and the other sites cited in the text.

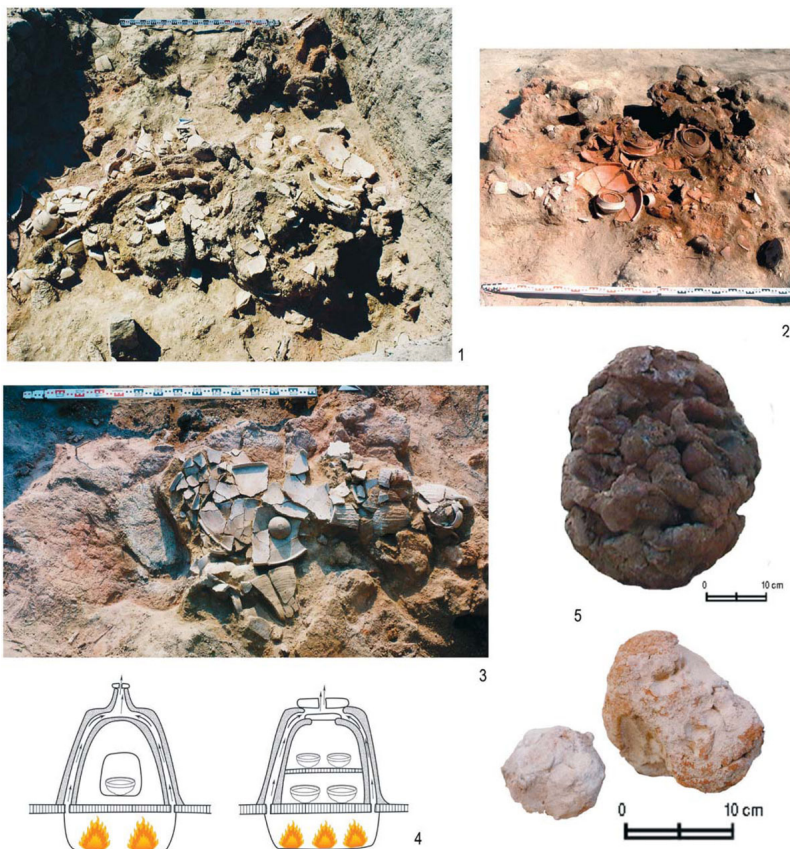


Figure 10.2. A pottery kiln from the burnt Late Eneolithic stratum of the mound and some of the finds around the kiln: 1. A stage of exploring the debris of the kiln, showing a part of the walls of the pottery chamber; 2. Pottery found under building debris next to the kiln; 3. Another stage of exploring the debris of the kiln: the base of the pottery chamber after lifting the debris of its walls; 4. Two versions of a reconstruction of the kiln; 5. Pieces of kneaded clay found next to the kiln.



Figure 10.3. Stages of excavating a sunken building. 1. Burnt debris of the floor of the second story, found approximately at the sunken level. 2, 4. Traces of load-bearing posts on the east side of the building. 3, 5. Stones used to reinforce the wall on the outside, some of them fallen into the sunken part during the destruction.

This was a two-story building. The collapsed floor platform of the upper story was found broken into large pieces in the sunken area (Fig. 10.3, nos 1, 2). Many shattered and intact vessels were recovered below and above it. Unlike the vertical walls, built with chaff-rich clay, the clay used in the construction of the platform is denser, but still contains organics. In places, the rubble of the burnt clay walls and the upper story floor platform, with a trapped hoard of vessels and other small finds, forms a thick deposit up to

1.50 m deep. In the north-eastern corner of this building, a second pottery kiln was found. It is considerably damaged; its accurate reconstruction is problematic. The exterior upper components of this kiln are made of clay mixed with some organics. These are part of the pottery chamber. Some of the surviving larger pieces suggest the form of the chamber was a truncated pyramid. The interior contains several layers of broken slabs of very dense grog-tempered clay, which is normally used for lining fireplaces. These might have been part of the horizontal walls of the firing chamber. Among these lie many intact and fragmented vessels and loom weights. Unfortunately, the lower part of the kiln (partially raised above floor level, and extending to a considerable depth below it) is badly damaged due to bio-perturbations (possibly a badger). In this building, in addition to the many vessels, other small finds: representations of tables, bone and clay anthropomorphic figurines, three amulets (roundels) made of human skulls, stone tools, *etc.*, were also found.

The dipping of the second excavated building (approximate dimensions 7.40 m $\times$ 5.10 m) is less pronounced, *ca.* 30 cm. Its eastern wall and the space between the two buildings are cut by a large trench of younger date. The western wall is well preserved, also constructed of two rows of posts, entwined with sticks and plastered with clay. A 2.50-metre-long line of auxiliary supports fixed in a trench runs along the central axis of the building. This too was a two-story building. The clay platform of the upper floor was found broken into large pieces, most of which are horizontally laid. In contrast to the eastern building, where vessels were present both below and above the platform pieces, here most of the pots were recovered above the collapsed platform, and in considerably lower numbers. In the eastern half of the ground floor a 2.50 m $\times$ 1.25 m rectangular space was cleared, enclosed by a low clay wall. No hearth or kiln was found in this building. In fact, except for the two pottery kilns, the excavated area from this construction phase (200 sq m of the settlement mound's surface)

yielded no traces of ovens or hearths typical of Eneolithic dwellings.

Compared to constructions known to date from settlement mounds from the same period, the two partially (and not identically deep) sunken buildings presented here are unusual. Their examination helped clarify the stratigraphic position of the finds from this level. The level at which the construction of the buildings began was established; each individual building being sunken to a different depth. The artefacts recovered outside the buildings in the adjacent passages/alleys should also be considered to belong to the same level. However, this association is only confirmed for several areas in proximity with the two burnt buildings, which also yield pieces of burnt remains.

The presence of pottery kilns inside the settlement combined with the vast number of vessels makes us believe that the occupants specialized in pottery production. Perhaps during this stage of the settlement's life, the residential structures were located around the tell, where separate fragments of Late Eneolithic pottery are found over a large area, while the raised portion of the mound was turned into a large pottery workshop. Such kilns are rare. A large number of completely explored settlements are known to have no kilns. Kilns constructed differently are also known. In that sense, from our finding of the kilns two questions arise: technological, related to the most exact possible reconstruction of a specific kiln, and secondly, about the role of potters' workshops such as this one, whose products evidently exceeded the needs of the population of this small settlement. On the basis of the above, it can be concluded that the described find was a permanently operating pottery workshop whose products were intended for exchange. The appearance of such finds is evidence for socio-economic changes that occurred as a result of the development of metallurgy and trade in metals, leading to social and wealth stratification.

Finds from the burnt stratum of the settlement mound

Pottery

Hundreds of vessels were recovered. They are made of purified clay with fine inorganic inclusions. Many of them are pots, *i.e.* cooking vessels. The interior surfaces are superbly burnished; the exterior is rusticated, with barbotine and plastic ornaments – knobs and prominent diagonal-shaped ribs, usually in a swastika arrangement.⁹ In terms of shape, these are not markedly different from the forms represented in other settlements dated to the end of the third phase of the Kodjadermen-Gumelnița-Karanovo VI culture. Here, only those of consequence to the settlement's position in the relative chronology are discussed.

There are two types of large open dishes without cornices: with tapering rim (Fig. 10.4, no. 5), and with semi-circular thickening on the inside of the lip (Fig. 10.4, no. 8). These are rare.

Three types of dishes with cornices are attested. The first type is very low, angled towards the interior cornice with a semi-circular cross section having a rounded exterior (Fig. 10.4, nos 2, 7); this type was in mass production. The large ones, wider than 30 cm, predominate. The interior of some is decorated, usually in a swastika arrangement of graphite designs. In this settlement level, there are no dishes of the type featured in the necropolis – the cornices are different (Fig. 10.9, no. C3). Such dishes were recovered from the lower settlement mound levels (during scraping of the floor level of the deeper-sunken building) and their absence is one of the characteristic traits of the phase reflected by the burnt horizon. The type is also found in the Durankulak necropolis, where it is associated with graves of the third phase of the Varna culture.¹⁰

The finds of the second type, with a cylindrical cornice and a slightly rounded transition between the top and bottom section profiled on the exterior (Fig. 10.4, no. 3), are few, but only of small and medium size. Level IV in Durankulak has shallow dishes

with an identical profile, but with considerably larger diameters (27 cm, 29 cm, 34.8 cm)¹¹ and they obviously reflect an earlier stage in the development of Late Eneolithic. The discussed Kozareva Mogila level contains higher numbers of the large bowls with a deep lower section, vertical or angled-inward cornice and with a similar transition.¹²

The third type, with a rounded transition between the lower section and the cornice, is represented by few finds. Of consequence to the relative chronology is a dish with red paste paint ornament on the interior (illustrated), and with deep punctures in horizontal lines on the exterior of the bottom section (Fig. 10.5, no. 7). There are other vessels with paste paint, red, white, and brown-black, but they are fewer. This type of decoration is characteristic of the final third stage of the Late Eneolithic. There are several finds of pieces of red paint, purified and cast into disc shapes.

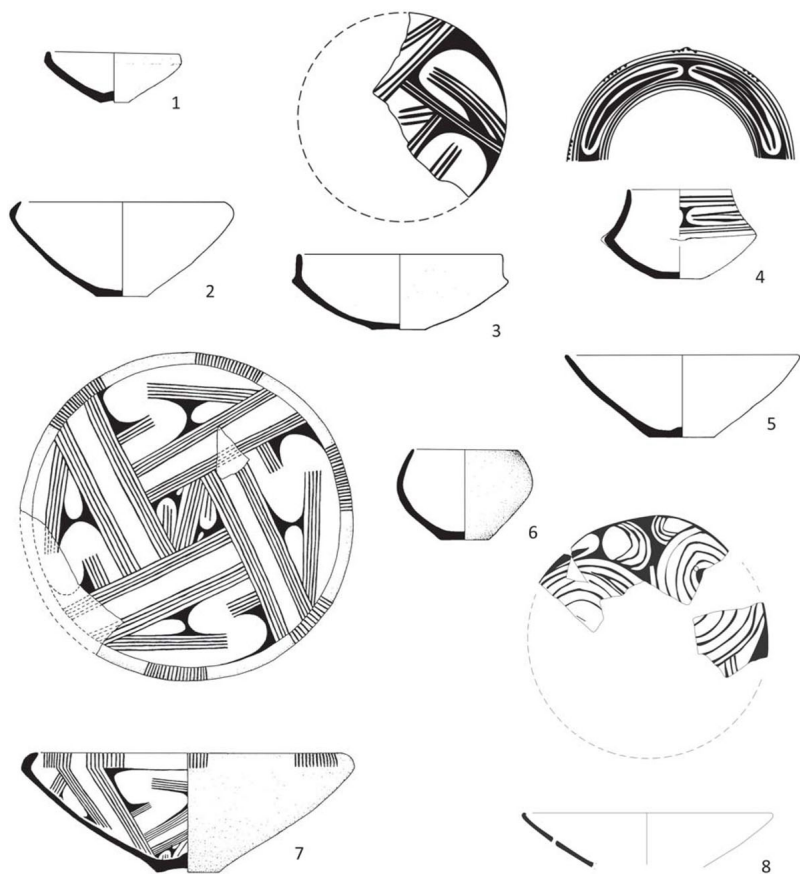


Figure 10.4. Pottery from the burnt stratum at the settlement mound. 1. $d_{max} = 11.6$ cm (scale 1:4); 2. $d_{max} = 36.4$ cm (scale 1:8); 3. $d_{max} = 16.9$ cm (scale 1:4); 4. $d_{max} = 12.0$ cm (scale 1:4); 5. $d_{max} = 38.0$ cm (scale 1:8); 6. $d_{max} = 11.2$ cm (scale 1:4); 7. $d_{max} = 53.0$ cm (scale 1:8); 8. $d_{max} = 40.0$ cm (scale 1:8).

The small biconical cups¹³ and the bowls with rounded smooth transition (Fig. 10.4, no. 6) are essentially no different from those of the third phase of the Late Eneolithic.

Important for the relative chronological position of the building horizon are the deep closed shapes (Fig. 10.5, nos 1–6). Several variants are found. The amphora-shaped ones, with handles attached vertically or at an angle (Fig. 10.5, nos 1, 4),¹⁴

are very close to those characteristic of Krivodol-Sălcuța.¹⁵ This is a symptomatic trait of the final Gumelnița A2 or B1 phase.¹⁶ Specific to them and to the vessels without handles (Fig. 10.5, nos 2, 5) is the shape of the body; the middle part is modelled separately, then attached to the neck and lower section and the places of adhesion are thickened.¹⁷ The shoulders are slightly bulged. Of similar form are also the large storage vessels (Fig. 10.6). Vessels with highly-raised shoulders, resembling a cape or a skirt, such as ones found in level IV of the settlement at Durankulak (yet unpublished), the necropolis at Durankulak,¹⁸ and the settlements at Pietrele¹⁹ and Yunatsite,²⁰ as well as vessels in which the bulge of the shoulder is above the base of the neck – Durankulak, Gumelnița, Hârșova, and Castcicioarele²¹ – are absent from this level at Kozareva Mogila. There are only two items with raised shoulders in the latter (Fig. 10.5, no. 6), but unlike the earlier ones the bulging is not very prominent.

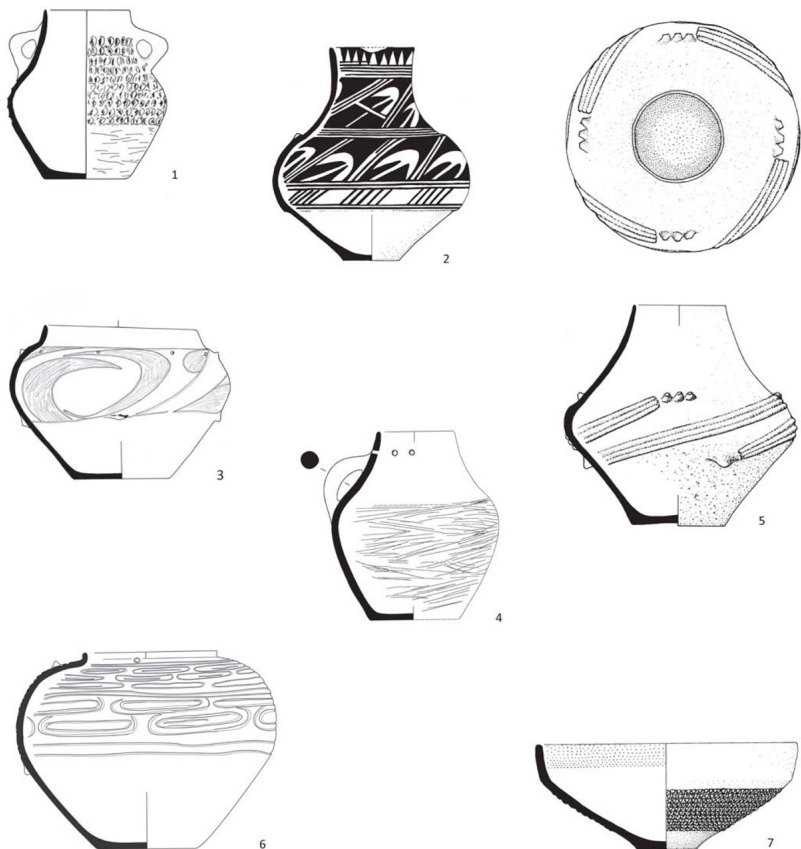
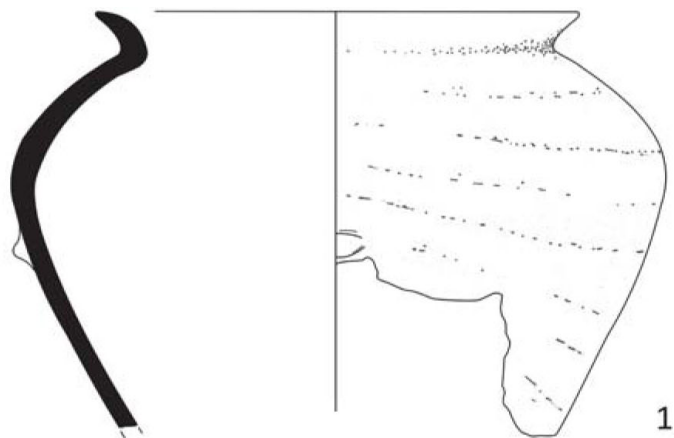


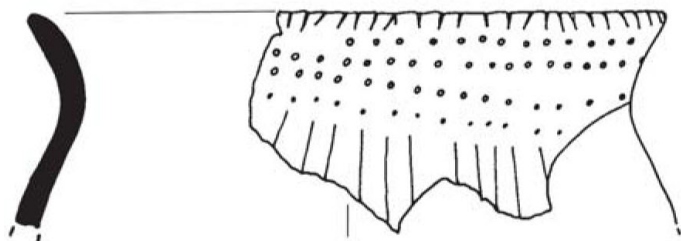
Figure 10.5. Pottery from the burnt stratum at the settlement mound.
 1. $d_{\max} = 16.1$ cm (scale 1:5); 2. $d_{\max} = 20.6$ cm (scale 1:5); 3.
 $d_{\max} = 27.2$ cm (scale 1:6); 4. $d_{\max} = 27.8$ cm (scale 1:8); 5. $d_{\max}$
 $= 29.$ cm (scale 1:6); 6. $d_{\max} = 27.8$ cm (scale 1:5); 7. $d_{\max} =$
 43.3 cm (scale 1:8).



Figure 10.6. Large storage vessel from the burnt stratum at the settlement mound. Dimensions: h – 77.5 cm, d (rim) – 33 cm, (scale 1:7)



1



2



3

Figure 10.7. Pottery from the burnt stratum at the settlement mound.
 1. $d_{max} = 20.5$ cm; 2. $d_{max} = 21.0$ cm; 3. $d_{max} = 11.4$ cm (scale 1:4).

From secure stratigraphic contexts at Kozareva Mogila come several pottery fragments tempered with crushed shell. They are from deep, rounded vessels. We were able to partially restore one of them (Fig. 10.7, no. 2), decorated with incised lines and imprints made with a small round stamp. The shape, and the paste of which it is modelled, are an argument for assigning it to the so-called “Type C” pottery,²² indicating the presence of a foreign ethnic population, originating in the steppe cultures, Sredny Stog²³ or Khvalynsk.²⁴ Associated with this pottery group are another two vessels, also from sealed contexts of the burnt level (Fig. 10.7, nos 1, 3). Their clay is indistinguishable from that used for the formation of traditional Late Eneolithic vessels, but the shapes are different. The first one (Fig. 10.7, no. 1) resembles the shell-tempered vessel (Fig. 10.7, no. 2), but with a more prominently out-turned upper body. The lip is tapering. The surface is slipped, the interior is burnished, and the exterior is rusticated with horizontal and diagonal bands from finger dragging. The top interior of the out-turned portion of the lip is polished. The second vessel is intact, with a flat bottom and rusticated surface (Fig. 10.7, no. 3). Compared to both the rest of the pots from this level and Late Eneolithic pots in general, it has a taller body. The rim is out-turned, tapering – like the other two vessels – but the out-turned section is much shorter. This is an argument for assigning it with vessels modelled after a foreign fashion. Finds of this kind are rare, but not unique.²⁵ In this particular instance, these are indicative not only of the presence of isolated small foreign ethnic groups in the region, but also for their intermingling with the native population.

Copper finds

From this construction phase, from the burnt ruins of buildings, come two copper awls, one small copper coil, and a pottery sherd with copper residue. North of the deeper-sunken building, at the level of the beginning of the sinking, was recovered another small

find of copper, a small knife/dagger (Fig. 10.8). It was found with Late Eneolithic sherds but outside the building, 0.20 m below the present-day surface. Because of this proximity to the present-day surface, its stratigraphic association with the said stratum is problematic. The artefact measurements are: length 12 cm, maximum blade width 2.5 cm, thickness 0.2 cm. The blade is leaf-shaped, and slightly asymmetrical. It is definitely double-edged; one edge, however, is slightly in-curved or worn. Towards the tip the blade tapers. It has an outgrowth with a hole in it for attaching the handle.

If we presume that the knife/dagger belongs to the burnt horizon, it is the earliest find of its kind. The earliest finds that can be described as knives from the territories of Late Eneolithic Varna, Kodjadermen-Gumelnița-Karanovo VI and Krivodol-Sălcuța, are several artefacts from the Telish-Redutite settlement (Krivodol-Sălcuța culture). They are arched²⁶ and were recovered from the first construction level,²⁷ referred to as the “classical phase” of the respective culture. According to the excavator, these were not used as knives, but as needles for sewing fishnets or knitting hemp, wool, or other materials.²⁸ H. Todorova considers them curved knives and assigns them to a separate type: Telish. In her opinion, these, together with the Bodrogkeresztur-type daggers, are the first metal cutting tools.²⁹ Despite the difference of opinion regarding their function, these artefacts mark a stage in metallurgical development, leading to the production of stabbing and cutting tools, replacing the traditional flint and bone items. Another other find, unusual for the Eneolithic period, not a knife but somewhat imitating a knife in terms of general shape and presence of a distinct hafting component, is a copper tool/weapon from the grave at Reka Devnya, which is based on the shape of the tip, and has been interpreted as a fine chisel.³⁰

The earliest true daggers from Europe date to the 4th millennium BC, a period labelled “horizon of the earliest daggers in Europe.”³¹ Two distribution zones are distinguished within this

horizon; eastern (North Pontic, coinciding with Cucuteni-Tripol'ye territory), and western (Central Europe, territory of Bodrogkeresztúr). From the Cucuteni-Tripol'ye territory come many daggers, found in burial complexes and associated with Usatovo type monuments.³² Their form and manufacturing technology set them apart from comparable objects found in the Bodrogkeresztúr territory.

We know of several daggers from Bulgaria. These include the finds from Hotnica-Vodopada (Moondsee type),³³ Durankulak – grave no. 982 (Nerušai type),³⁴ Durankulak-Golemiyat Ostrov,³⁵ Haramiyska Dupka – with two daggers (types Sofievka and Yagodina),³⁶ Tarnovo-Trapezica³⁷ and Galiche.³⁸ These are generally referred to as the Transitional period to the Bronze Age (according to the Bulgarian periodisation scheme). The dagger/knife from Kozareva Mogila differs from the above, both in shape and size.

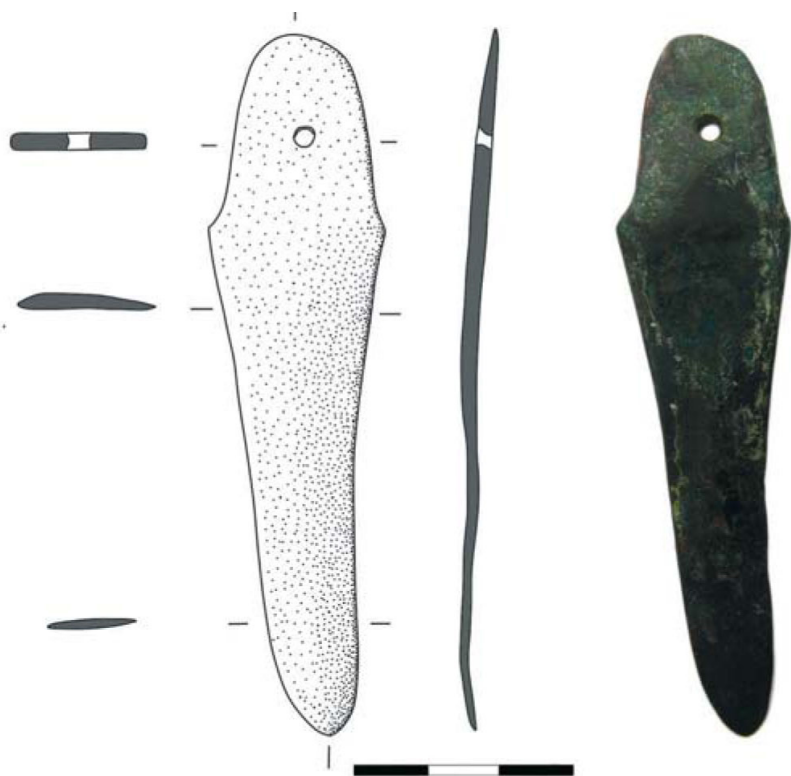


Figure 10.8. Copper knife/dagger. Length: 12.0 cm, maximum blade width: 2.5 cm, thickness: 0.2 cm.

According to the shape, the closest analogue for the Kozareva Mogila find is a dagger found in the Ilipinar necropolis (North-Eastern Turkey), an artefact with elongated proportions, diamond-shaped cross section of the blade, and considerably larger dimensions. It is made of arsenic bronze.³⁹ Finds close in terms of shape come also from EBA I (Beycesultan); these too, however, are considerably larger. Similar in shape is also the dagger from grave no. 25 from the Bereketkata Mogila necropolis from the EBA.⁴⁰ It also has large dimensions (17.5 cm long) and does not have a hole for attaching the handle.

Although the stratigraphic position of the Kozareva Mogila find is uncertain, its small size and the lack of exact parallels for its

shape in the 4th to 3rd millennium BC support its Late Eneolithic date.

The necropolis

The excavated area of 120 sq m produced eleven graves from two distinct ritual and chronological groups; nine of the late Eneolithic and two most likely from the transition to the Bronze Age. These are located in separate sectors of the necropolis.

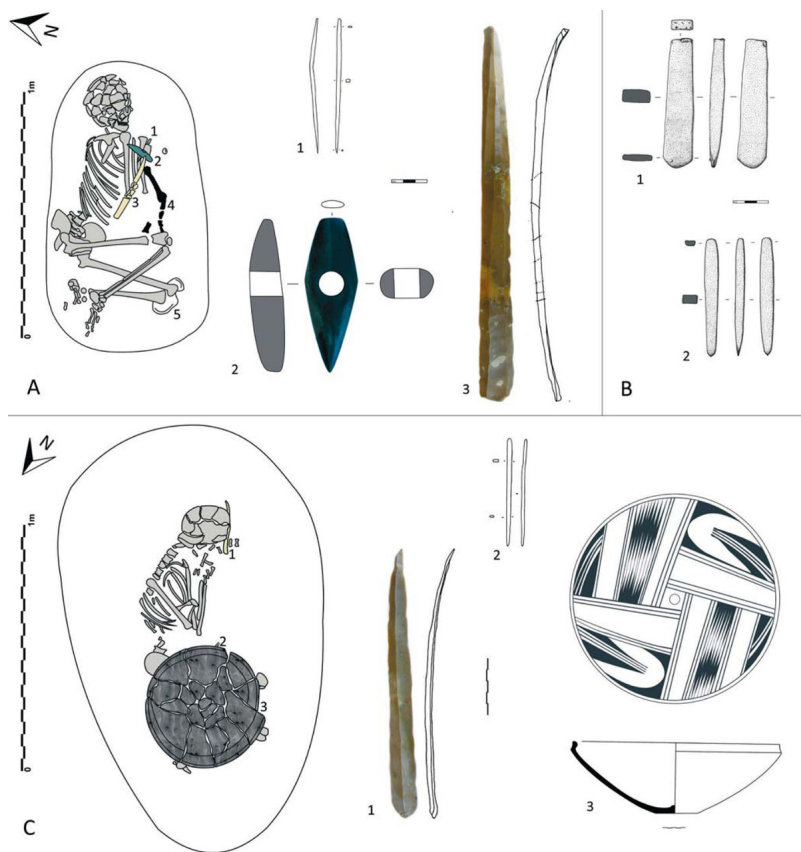


Figure 10.9. Finds from the necropolis. A. Late Eneolithic grave 12 with burial inventory: 1: copper awl, 2: serpentine hammer axe, 3: flint blade, 4: bones from a pig's right front limb, 5: unprocessed stone. B. Chisels from grave 9. C. Late Eneolithic grave 11 with burial

inventory: 1: flint blade, 2: copper awl, 3: graphite-painted plate.

The nine Late Eneolithic graves are situated in close proximity to each other, within a 100 sq m area 300 m north-west of the settlement mound. The Eneolithic ground level, in which the grave pits were dug, was successfully distinguished in the course of the excavations. It is marked by isolated pottery sherds or concentrations of small sherds found ca. 50 cm below the modern surface. These are situated either in proximity to, or immediately above, the graves and are likely remnants of post-funeral ritual activities. Furthermore, excavations registered a change in the structure and colour of the soil coincidental with this level. The burial pits are long ovals of different depths: from 0.30 m to 1.00 m. The shallowest pit was for a young child; the deep pits held adult individuals, with the deepest belonging to three burials with a richer inventory. A similar practice is registered with other necropolises in the West Black Sea area.⁴¹

All nine skeletons are in contracted position. Seven of them are aligned east, one west, and one south-east. Six (five with head to the east, one to the south-east) are rested on their left side, the other three on the right; presently no correlation between sex and skeletal position can be observed due to insufficient data. All graves have a burial inventory: vessels, flint blades, astragals, copper chisels and awls, and a stone axe-sceptre.

With regards to firing, the vessels included with the burial inventory are of two variants: fired and unfired. The unfired ones are miniature biconical forms, placed near the head. The fired ones are considerably larger, their capacity identical to the vessels used in the settlement sites. These too are placed near the head, or upon the body. They are well formed and in some instances are slipped, burnished, and with graphite ornament. The difference with the settlement-context artefacts lies in the noticeably lower firing temperatures, suggesting manufacture in small domestic ovens. This is demonstrated best with the large dishes, which obviously could not fit well into a domestic oven. Due to the poor

temperature control in these ovens, some sections of the large dishes – usually near the rim, at the maximum diameter – remain unfired. Based on pottery shape and decoration, this group of graves can be assigned to the third phase of the Kodzadermen-Gumelnița-Karanovo VI and Varna cultures. They clearly precede the uppermost burnt Late Eneolithic level on the settlement mound, and are roughly synchronous with Level IV of the settlement at Durankulak-Golemiyat Ostrov.

A total of four copper artefacts were recovered from three graves: two awls and two chisels (Fig. 10.9). The awls have rectangular cross sections. The chisels are quite heavy, also with rectangular cross sections: type TD-4 according to E.N. Chernykh,⁴² or type Varna A according to K. Dimitrov.⁴³

Four graves contained large flint blades (Fig. 10.9, nos A3, C1). Two are particularly elongated, resembling the long flint blades from the necropolis Varna I. The raw material used has been identified as type Ravno (Razgrad district) and type Kriva Reka (Shumen district).⁴⁴ The blades were included in the graves as status symbols. The large blades are believed to have been brought from production centres in North-East Bulgaria.⁴⁵

The two longest blades come from graves nos 11 and 12 (Fig. 10.9, A, C). Both graves are deeper than the rest. One (no. 11) held a female, over 65 years old (Fig. 10.9, no. C).⁴⁶ The body rested in a contracted position on her left side. The 23.5 cm-long fine flint blade was placed in front of the face; a copper awl was set in front of the pelvis. A small area of the soil around it is stained in bright red – perhaps residue from a coloured handle. A large clay dish turned upside down was placed upon the lower pelvis and legs (Fig. 10.9, no. C3). It is well made and its interior is ornamented with graphite.

The second long blade comes from grave no. 12 of a young male (20–5 years old), also resting in a contracted position on the left (Fig. 10.9, no. A). The blade is 33.3 cm long and more solid than the one found in grave no. 11. In addition, the grave yielded

one copper awl. As in grave 11, the soil at one end is stained reddish-brown. The inventory of grave no. 12 also includes a stone hammer axe, possibly a sceptre (Fig. 10.9, no. A2), a large animal bone, and a pebble smoothed by water transportation. The axe is fixed upon the arms, next to the blade. It was cut from dark green serpentinite with light-coloured inclusions.⁴⁷ The piece from which it is formed was selected for the light-coloured strip running along the long axis of the artefact, separating it visually into two symmetrical halves and creating the impression of a painted design. The axe is superbly polished, with no visible traces of use. Its function was likely similar to that of the hammer axe/sceptre from grave no. 43 of the necropolis at Varna I.⁴⁸

To date, the Kozareva Mogila necropolis is the only necropolis from the Late Eneolithic discovered south of the Balkans. Its investigation is important for determining the extent of the territory of the Varna culture. Prior to the discovery of this necropolis, it was assumed that the Varna culture had spread over the entire West Pontic region.⁴⁹ Since one of the primary indicators for discerning this culture from Kodjadermen-Gumelnița-Karanovo VI is the specific burial custom – men in extended, women in contracted position – the information collected so far about the rites at the Kozareva Mogila necropolis shows that they were obviously different from those in the necropolises of Devnya, Durankulak, and Varna. The local burial custom shows much closer affinity to the Kodjadermen-Gumelnița-Karanovo VI culture, with the best comparanda provided by the Vinitsa necropolis.⁵⁰ The nine closely-situated graves studied to date refute a clear connection between sex and age, skeletal position and general orientation. Currently available data about the depth of the various burial pits of the Kozareva Mogila necropolis confirms observations from the excavations at the Durankulak and Varna I necropolises regarding correlations between age and social-economic status of the buried individuals. The graves featuring richer inventory (copper artefacts, very long

flint blades) are dug deeper into the ground; gradually narrowing towards the bottom of the pits, with wide mouths. The graves with poorer inventory are shallower; the only child grave is a very shallow pit. Just as in the necropolises of Varna and Kodjadermen-Gumelnița-Karanovo VI, the vessels placed in the graves were specifically made for the occasion.

The second chronological group of graves in the necropolis contains two graves, no. 1 and no. 2. They were found in immediate proximity to one another in the year when the necropolis was discovered and partially destroyed. Both skeletons rest on their backs, with the legs bent at the knee. Grave no. 1 was partially destroyed by tillage. The general orientation is south-east (head) to north-west. Next to the skull and between the legs were small pieces of red ochre. Based on the preserved *in situ* bones, the body was placed on its back, with drawn-up legs bent at the knees, fallen to the right. The grave contained 13 mushroom-shaped bone artefacts, each pierced at the stem, probably for suspension, or laced together. The bone items are of approximately identical size – between 2 cm and 2.5 cm long. Grave no. 2 was also partially destroyed by tillage. The skeleton is in a half-contracted position to the left. The orientation is north-east (head) to south-west. Small lumps of red ochre were found in the soil surrounding and covering the skeleton. A fragment of a thin avian bone tube, pierced – possibly part of a whistle (flute) – was found within the rib cage.

Both graves contained red ochre – atypical of the Kodjadermen-Gumelnița-Karanovo VI and Varna burials, although small pieces are reported from many other graves, including some in the Kozareva Mogila necropolis. Another divergent element is the skeletal position – on the back, with legs drawn up and bent – similar to the Kjúlevča⁵¹ graves and the majority of graves from the chronological horizon associated with the propagation of “zoomorphic scepters.”⁵² The burial inventory recovered – bone adornments, and especially the so-called “flute” – find comparanda

in graves characteristic of the Khvalynsk culture, which shares a similar burial custom.⁵³ These are the reasons behind identifying the graves as from the Transitional period to the Bronze Age – the beginning of the 4th millennium BC. Since materials proving the presence of people from the steppes, known to have such rites, were found in the settlement mound, the two graves could also be simultaneous with the uppermost burnt Eneolithic level of the mound.

Alternatively, the two graves might be younger, from the Early Bronze Age. Adornments similar to the mushroom-shaped bone artefacts from grave no. 1 have been found in the Dyadovo settlement mound. These were found in a pit assigned to the Early Bronze Age.⁵⁴ To date in Thrace, only one non-tumulus necropolis has been referred to this period, the one by the Bereketska settlement mound. Although it includes a group of graves exhibiting a similar burial custom, the inventory is different, mostly consisting of ceramics.⁵⁵

Conclusions

The current results of the excavations at Kozareva Mogila provide a small piece from the jigsaw puzzle of archaeological facts, anticipated to recreate a picture of the transition from Eneolithic to Bronze Age. This is a mystery to be solved by generations of archaeologists.

The data collected at the necropolis allow us to limit the territory of the Varna culture. The culture with features known from Durankulak, Varna and Devnya is confined to coastal Dobrudja. Despite the considerably diverging burial customs, affinities such as the rich burial inventory indicate the importance of the Black Sea settlements in the growth of commerce.

Research focused on the burnt level on the settlement mound, and the sizable amount of recovered ceramics, is important for clarification of the relative chronology of the Late Eneolithic culture, and in particular, of the relative chronology of the third

phase of the Kodjadermen-Gumelnița-Karanovo VI and Varna cultures (according to the Bulgarian periodization scheme). The stage represented by the burnt settlement level should be allocated to the so-called “final stage of phase III” (according to H. Todorova). The important differences outlined above between the vessel shapes from the burnt level at Kozareva Mogila and those from Durankulak (level IV of the settlement at Durankulak-Golemyat Ostrov and graves determined to be from the Varna III phase) point to a sizable chronological gap, *i.e.* that a stage of the Late Eneolithic, manifested in numerous Pontic (Năvodari)⁵⁶ and hinterland (Pietrele, Sultana) settlement sites, is not reflected in the Durankulak settlement and necropolis and in the Varna I necropolis. This, at least partially, might be the explanation for the marked discrepancies in absolute dates from the Varna I necropolis and those calculated for the Pietrele settlement.⁵⁷ On the other hand, there are considerable differences between the ceramic forms from Kozareva Mogila’s burnt horizon and the pottery from the submerged settlement by Sozopol,⁵⁸ where the final stage in the development of the West Pontic Late Eneolithic cultures is shown. This implies the existence of an intermediary stage in the development of Late Eneolithic which has not yet been identified, but is evidently real.

The specific feature of the discussed burnt level on the settlement mound, a large pottery workshop with indoor pottery kilns, complements our understanding of the socio-economic developments of this society. The specialisation in such a simple mass production activity as pottery making is indicative of the general level of development of the culture and social organization. It is only logical to assume that such mass production was intended for exchange, *i.e.* that this is the beginning of pottery commodification. It is likely that the products of all industries, including agriculture, were also exchanged.

The presence of pottery produced according to the traditions of the incoming steppe population – made locally at that – is proof of

the presence of these peoples in the territories of the Kodjadermen-Gumelnița-Karanovo VI and Varna cultures, coinciding with their existence.

Notes

- 1 Kostov 2007. Small unprocessed pieces of carnelian have been found during excavations at the settlement. Considerably bigger pieces, also unprocessed (the largest has a maximum dimension of 5.4 cm), have been found in pits without burials at the necropolis. Small pieces are also found within the necropolis area, which is cultivated, and in the fields around the mound. Carnelian pebbles can be found at the beach and in the water at the nearby mouth of the Aheloy River as well.
- 2 Georgieva 2012a; Georgieva and Gyuzelev 2006; Georgieva and Popova 2012; Georgieva *et al.* 2013.
- 3 Georgieva 1998.
- 4 Georgieva 2003.
- 5 Hansen *et al.* 2006.
- 6 Georgieva 2003.
- 7 Georgieva 2010.
- 8 Georgieva 2003, fig. 13, nos 7-8.
- 9 Georgieva 2003, figs 5, 6, 8.
- 10 Todorova 2002c, fig. 125, nos 29, 32.
- 11 Thanks to Prof. H. Todorova for granting permission to study the settlement's pottery assemblage.
- 12 Georgieva 2003, [Fig. 7.3](#), 4.
- 13 Georgieva 2003, Fig. 2.6, 8.
- 14 Georgieva 2003, [fig.3.1–4](#).
- 15 Georgieva 2012a, figs 31–36.
- 16 Voinea 2005, 47.
- 17 Georgieva 2003, Fig. 4.2, 3.
- 18 Todorova 2002c, Fig. 125.25, 28, 31.
- 19 Hansen *et al.* 2009, [Fig. 41.2–4](#).
- 20 Todorova and Matsanova 2000, [Fig. 26.4](#), no. 2.
- 21 Voinea 2005, pl. 38, no. 7, pl. 63, no. 6, pl. 64, nos 4, 5, pl. 67, nos 4, 5, pl. 88, nos 8, 12.
- 22 Dodd-Opritescu 1982.

- 23 Telegin 1973, 81–101.
- 24 Barynkin 2010; Vasil'yeva 2010a; Vasil'yeva 2010b.
- 25 Voinea 2005, 138.
- 26 Gergov 1987, 48–50, fig. 6, nos a, б, в.
- 27 In subsequent papers, the excavator corrects the number of construction phases, making the layer of concern to us presently second in the sequence (Gergov 1992, 348).
- 28 Gergov 1987.
- 29 Todorova 1994, 11.
- 30 Mirchev 1962, fig. 4; Chernykh 1978, tab. 13, no. 16.
- 31 Novotna 1982; Vaysov 1992, 47; Vaysov 2002.
- 32 Videiko 2004, 259–60; Dergachev and Manzura 1991, [figs 26.5](#); 39.4; 59.7; 60.2, 8; 62.6; 64.10; 70.1.
- 33 Ilcheva 1986, 215, Fig. 4.1, 3; Ilcheva 2009, 51–3, tab. 22, nos 1, 4.
- 34 Vaysov 2002.
- 35 Vaysov 1993, 177, [Fig. 12.4](#).
- 36 Vaysov 1993, 177, [Fig. 12.3](#), 6.
- 37 Rabovyanov and Gyuleva 2012.
- 38 Nikolov 1962.
- 39 Beggeman *et al.* 1994, 215, tab. 1, no. 1392.
- 40 Kalchev 2002, [Fig. 15.3](#).
- 41 Dimov *et al.* 1984, 80–1; Todorova 1986, 187.
- 42 Chernykh 1978, 104.
- 43 Dimitrov 2007b, 19.
- 44 The finds were studied by M. Gyurova.
- 45 Manolakakis 2002.
- 46 Thanks to Dr. V. Russeva for sharing her findings of the analysis of the human osteological material.
- 47 The raw material was identified by Prof. R. Kostov, to whom we express our gratitude.
- 48 Ivanov 1978a.
- 49 Todorova 1984, 46; Todorova 1986, 119–22.
- 50 Raduncheva 1976, 69–98.
- 51 Vážarova 1986; Georgieva 2005, 147.
- 52 Govedarica 2004.
- 53 Agapov *et al.* 1990; Pestrikova and Agapov 2010.
- 54 Semmoto 2006, fig. 19, pl. 10.

55 Kalchev 2002.

56 Voinea 2005, pls 80–2.

57 Hansen *et al.* 2007, fig. 4; Hansen *et al.* 2008, fig. 3; Hansen *et al.* 2009, 31; Higham *et al.* 2007; Reingruber 2010; Reingruber 2012; Toderas *et al.* 2009; Weninger *et al.* 2010.

58 Draganov 1998.

The Chalcolithic settlement at Varhari: A production and trade centre in the Eastern Rhodope Mountains

Kamen Boyadzhiev and Yavor Boyadzhiev

Introduction

The Varhari site is located in the Eastern Rhodope Mountains (South-Eastern Bulgaria), 10 km to the south of the town of Kardzhali, at the confluence of the Varbitsa and Diva Reka rivers. The site is situated on a low river terrace; it is almost flat, slightly sloping downward to the north at the bed of the Diva Reka river. The archaeological excavations at the site were induced by the construction of the road connecting the towns of Kardzhali (Bulgaria) and Komotini (Greece) and were carried out during 2007–11.¹ The excavated area is 280 m long and 20–25 m wide (Fig. 11.1). The northern end of the site is marked by a deep ditch, which probably followed the natural slope of the ancient surface, while geophysical prospection showed that the southern border of the site is very close to the end of the excavated area. The total width of the settlement is about 150–200 m, and spans the area between the Varbitsa riverbank to the east and a low rocky elevation to the west.

Excavation data

The site at Varhari has a single occupation layer. The calibration intervals of the two ^{14}C dates obtained so far coincide between 4795 and 4688 cal. BC,² and taking into consideration the characteristics of the pottery, the lifetime of the settlement should be placed toward the end of this calibration interval. The shapes, decoration techniques and motifs (Figs 11.2 and 11.3) are most similar to pottery assemblages from the Transitional period between the Early and Late Chalcolithic in this region. However, it should be noted that in these complexes, pottery considered typical for the Early Chalcolithic and vessels characteristic for the Late Chalcolithic were also found.

The site was destroyed by fire and not inhabited again. Observations in the field, as well as geomorphological studies, revealed that the ruins of the site were then flooded several times and remained submerged for some time. Indeed, no traces were left from the construction of the buildings. The substructure of the buildings was unearthed only because the foundations of the majority of the buildings were cut into the ancient surface at a different depth (Fig. 11.1), and from these we can ascertain that the site was densely crowded with structures. The sites of the buildings were also marked by concentrations of archaeological artefacts – burnt house debris, ceramic sherds and numerous stones. There is evidence that the walls were solidly built from clay, though wooden beams and stones were also used. The excavated substructures form large assemblages, which include both horizontal (ground-level) features, and those cut into the surface. Depth varies from 40–50 cm (negative features 1, 2, 3 – assemblage IX) to over 4 m (negative feature 24 – assemblage I). Remains of hearths were found in the filling of the negative features. Since they were not discovered *in situ*, they had probably fallen into the features. Some hearths were also situated on the ground surface close to the negative feature.



Figure 11.1. The Varhari site. View from the northwest.

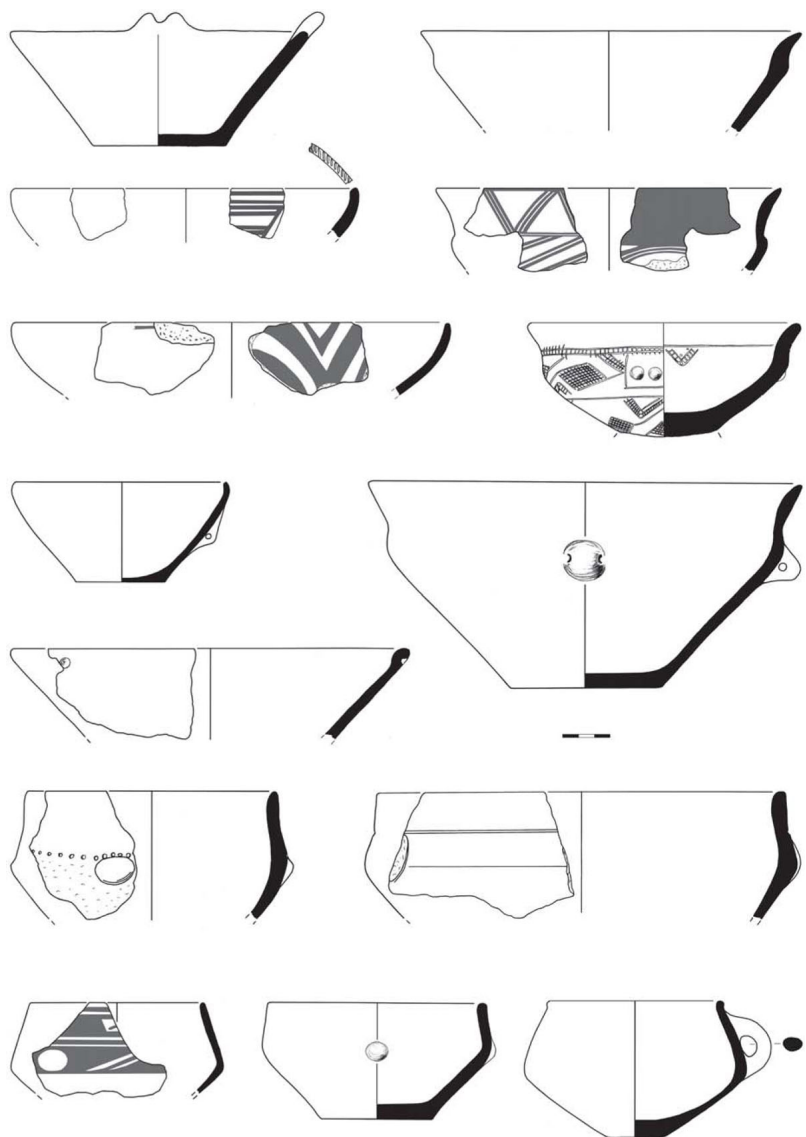


Figure 11.2. Typical pottery shapes and decoration (graphite-painted and incised).

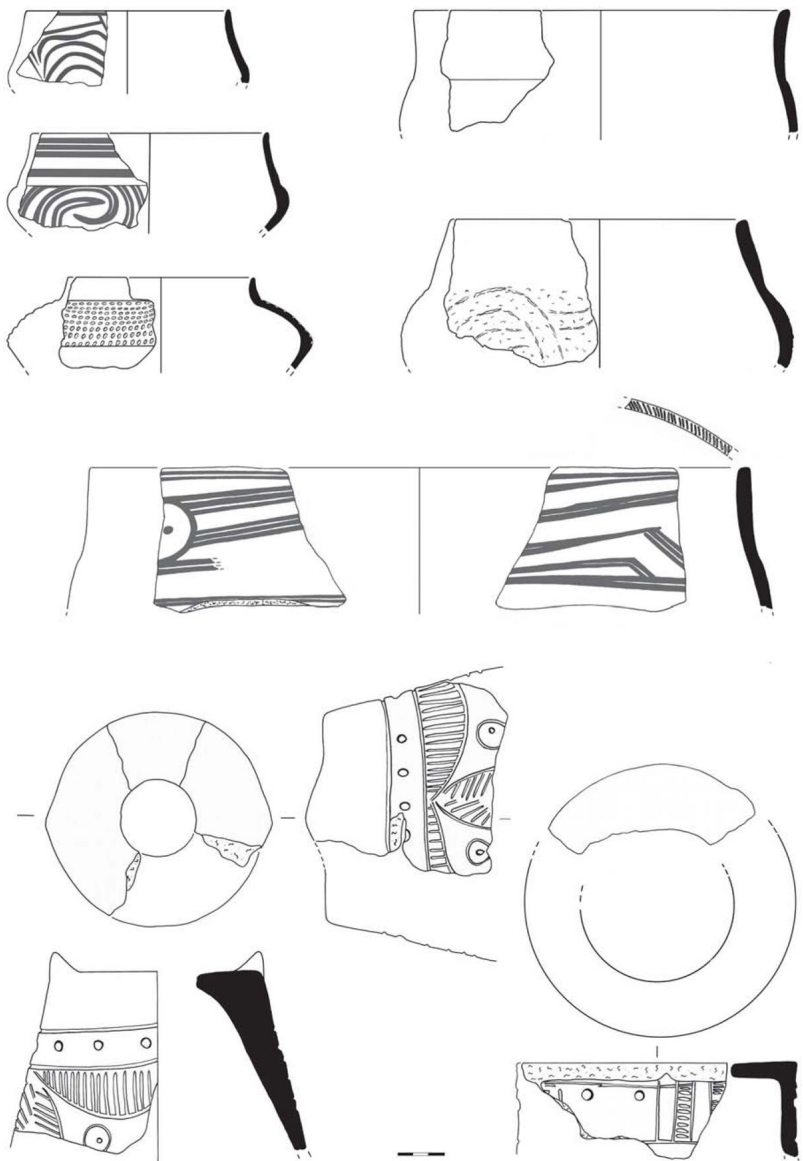


Figure 11.3. Typical pottery shapes and decoration (graphite-painted and incised).



Figure 11.4. Assemblage II. Grain storages on its floor.

It appears that most of the negative features were not used for residential purposes, but rather as cellars which were covered by floor structures. Most probably, each negative feature marked a separate room. The rooms had specific functions, indicated by variation in the types and concentrations of archaeological artefacts. It seems that some of the shallower negative features had direct access to a ground-level area and were used as spaces for economic activities.

Ten assemblages consisting of connected ground-level features and features cut into the surface were documented, with areas ranging from 200 to 500 sq m. Assemblage II is different from the others. It consists of only two negative features, one of which (negative feature no. 35) is extremely large, measuring ca. 25 m wide (N-S), its southern and northern boundaries were defined but while 22 m of its east-west extent were excavated, it stretched beyond the road-bed and the excavated area in either direction. This means that it covered an area of more than 600 sq m. The

base of this assemblage was flat and covered with pebbles in contrast to the negative parts in other assemblages. The feature was cut into the surface to a depth of ca. 1.80 m. Three immovable grain stores, slightly cut into the bottom of negative feature 35, were unearthed (Fig. 11.4). The foundation of the northern wall was built of stones. Among the stones were two artificially decorated with many shallow pits. (Fig. 11.5). A corridor made by a slight depression in the ground connects this feature with negative feature 43, which is almost circular with a diameter of about 10 m (covering an area of about 80 sq m). Both pottery and all other finds in feature 35 are much less numerous than in the other assemblages. All these provide grounds to assume that it had a different function to the other buildings. We may possibly interpret it as a public building of some kind.



Figure 11.5. Assemblage II. Stone decorated with shallow holes.

Most numerous among the finds are the lithic artefacts – totalling more than 60,000. Different raw materials are attested. Jasper (in various colours) and chalcedony prevail (Fig. 11.6).

Most of the raw materials are widely spread in the region, including the riverbeds of Varbitsa and Diva Reka. Probably they were mainly collected as pebbles but the use of specific deposits is also possible. According to the survey of the geologist Prof. C. Nachev, a deposit of dark-green jasper near the village of Sushevo, about 2 km south-east of the site, was probably exploited.

The characteristics of the lithic artefacts and the finds contexts show that their manufacture had taken place inside the settlement. The vast majority of the objects are manufacturing debris – mainly flakes. The blades and the retouched tools are much fewer in number. Cores were also found and different techniques of their exploitation have been attested.

The tools do not represent much typological variety. End-scrapers prevail, comprising *ca.* 70% of all retouched tools (Fig. 11.6). They are made on flakes or blades. Some double scrapers were also found. Blades, flakes with polish, micro-perforators and some flakes with denticulated retouch were attested.

In most of the complexes, in at least one of the negative features or on the surface near them, compact concentrations of lithic artefacts, mainly flakes of different raw materials were surveyed. Obviously, these were places where manufacture took place. The large number of lithic artefacts, the specialised production (mainly of scrapers), and the vast prevalence of debitage products over finished tools provide grounds to suggest that production was aimed at trade and “export”. At the same time, tools made of high quality flint from North-Eastern Bulgaria were imported. Few blades were found that, in terms of both technology and raw material, are most probably a product of the large blade workshops in this area and particularly the Ravno region.³ At the same time, no debris of this raw material was found in the settlement (the so-called “honey flint” of the Ravno-Radingrad type.).



Figure 11.6. Scrapers of different raw materials.

Two “workshops” for stone bead manufacture were also found at the Varhari site. Concentrations of beads in different production stages were uncovered, including roughly shaped small plates, shaped but not drilled circular pieces, semi-drilled beads, fragments broken during drilling and some whole finished beads (Fig. 11.7). Almost all of them are from one raw material (slate). Two main types of beads are represented: flat with larger diameter (over 10 mm) and almost cylindrical with smaller diameter (under 10 mm). The first type prevails. In both types the holes were drilled from both sides and have a similar diameter (usually around 2.5–3 mm), which suggests the use of a standard technique and instruments. Together with the beads, flint micro-perforators, which were obviously used for drilling, were found in both “workshops.” One of the workshops was in a relatively shallow negative structure (no. 19) in complex III and the other on the surface near negative structure no. 8 in complex X.

The polished stone tools from the site represent the common repertoire for Chalcolithic settlements: axes, adzes, chisels, wedges, hammers, grinders, *etc.* Various local materials were used

for their production. Most probably they were collected as pebbles in the Varbitsa and Diva Reka riverbeds. In most of the cases no preference in the use of specific material for particular tools is visible. The hammer-axes are an exception. Almost all (9 out of 12 analyzed; 16 found altogether) were made of amphibolitised metabasites, which was very rarely used for tools of other kinds. This material is available in the immediate vicinity of the settlement and was obviously extracted there.⁴ The plotting of these artefacts provides grounds to suggest manufacturing in complex VII, where a roughly shaped hammer-axe, one semi-drilled piece and two other fragments were found.



Figure 11.7. Stone beads in different production phases and microperforators used for their drilling.

Conclusions

There are enough arguments to prove that specialized production activities of lithic tools, stone beads and polished stone tools and weapons took place at the Varhari settlement. This manufacture was based on the large variety of suitable local raw materials and easy access to them. In the case of the lithic artefacts, at least,

production seems to have largely exceeded the needs of the inhabitants of the settlement. These tools were probably traded. It is possible that in the process of exchanging them (and maybe the stone beads, too) the inhabitants of the Varhari settlement imported cereals. Two facts support this hypothesis. On the one hand, the settlement occupied the most suitable place for agriculture in this mountain region, which suggests that agriculture was not a priority to its inhabitants. On the other hand, large quantities of grains were found in most of the buildings. One or two rooms in each assemblage yielded a large amount of carbonised grain (mainly einkorn wheat) and smaller amounts of vetch, as well.⁵ The grain was found in the soil, the concentrations being more or less compact. Apparently, it was packed in non-durable material, most probably in sacks. Since the environment did not provide favourable conditions for agricultural activity, it can be suggested that the grain came from other regions.

The geographical position of the site and some parallels with the pottery found in Dikili Tash, Sitagroi and Paradeisos (Fig. 11.2 and 11.3) provide grounds to suggest that there were contacts with the North Aegean coastal area. It is probable that the most intensive exchange routes were aligned in this direction. Some findings also suggest contacts with much more distant regions: with the Polyanitsa IV/Kodjadermen-Gumelnitsa culture area to the north-east (the blades of the Ravno honey colored flint and some figurines – Fig. 11.8.2) and maybe even farther away to the pre-Cucuteni-Tripolie A area (one specific figurine – Fig. 11.8.1); and to the Gradeshnitsa culture area to the north-west and along the Struma river valley.

The research at the Varhari settlement shows that the Eastern Rhodope Mountains were not an isolated area but an active participant in the “Chalcolithic world,” playing an important role in the connections between the Northern Aegean coast and Northern Thrace.

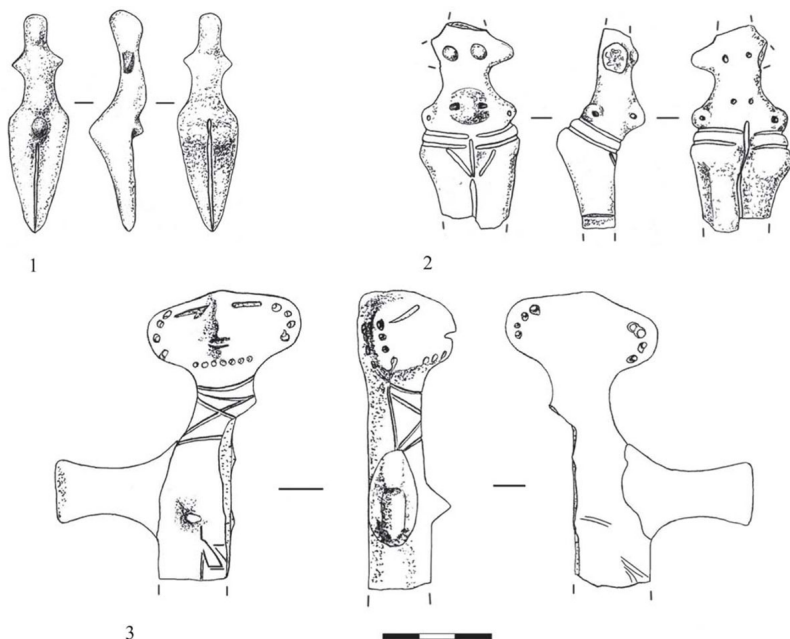


Figure 11.8. Anthropomorphic figurines.

Notes

- 1 Boyadzhiev and Boyadzhiev 2008; Boyadzhiev *et al.* 2010; Boyadzhiev and Boyadzhiev 2011; Boyadzhiev and Boyadzhiev 2012.
- 2 Boyadzhiev and Boyadzhiev 2015.
- 3 Gurova 2011, 284; Nachev 2009.
- 4 Georgiev *et al.* 2012.
- 5 Popova 2011, 296–7.

The latest Late Chalcolithic settlement at Tell Yunatsite: Plan and architectural remains

Velichka Matsanova and Tatyana Mishina

Introduction

The thick Chalcolithic layer at Tell Yunatsite was registered by V. Mikov as early as his first archaeological excavations at the tell in 1939.¹ Re-opened in 1976, the excavations covered a vast area (one-third of the total area of the tell) and provided the opportunity to examine in detail both the Early Bronze Age layer and the final Chalcolithic construction layer.²

The walking surface of the final Chalcolithic construction level corresponds to the general slant of the cultural deposits at the tell, *i.e.* a considerable slant from north to south and a lesser slant from the central part to the east. The recorded depths of the Chalcolithic construction level are as follows: 4.90–5.10 m (at the northern part), 5.50–6.00 m (in the central part) and 6.90–7.18 m (at the southern part).³ The slant was probably a result of the natural relief of the low river terrace situated on the right bank of the Topolnitsa river.

The upper level of the final Chalcolithic settlements was marked by a layer of burnt debris, ash and charcoal. This construction layer is generally characterised by houses destroyed

by fire whose boundaries have been difficult to define due to considerable disturbance during later periods. The house debris covered human skeletons in unnatural positions bearing traces of fire on the bones (Fig. 12.1). Ovens and grain storage areas were discovered during the excavation of the burnt houses; the houses themselves yielded a large number of artefacts, such as ceramic vessels, bone, antler and stone artefacts. Human bones were also found outside the burnt houses. These houses are described below with a focus on their position in the north and south sector.

Six houses were excavated in the northern sector.

House no. 2

Situated at the end of the eastern part of the settlement (squares И/Л 4–5), it was registered as a thick deposit of burnt house debris (house walls). The house was disturbed by V. Mikov's trench to the south; its eastern part was also disturbed by the erosion of the tell's slope and the ditch underneath a Roman defensive wall. The house was rectangular in plan, oriented NNW–SSE, and it was 12.5 m long and 7.70–8 m wide. The 0.25–0.30 m thick wall made from light yellow clay and several post holes were recorded in the north-western part of the house. The debris, which formed the upper layer of the construction, was registered at a depth of 5.25–5.40 m. The walking level (the upper floor of the house?) was reached after dismantling the debris down to a depth of 5.56–5.75 m. The clay debris was melted and, at some sectors, almost fused into glass by the high temperature. Remains of red pigment were found on some pieces of burnt wall plaster. Fragments of highly burnt human bones were found at this level: no. 58 (male, *maturus*), no. 70 (male, *maturus*) and no. 71 (male).⁴

A grain storage edifice, round in plan with a 0.60 m diameter (no. Ib, sq K/5), was discovered at a depth of 5.90–6.10 m (the supposed lower floor of the house). Its walls were preserved to a height of 7–8 cm. The grain storage feature no. XIV, oval in plan and measuring 0.80 × 0.60 m, was excavated in sq K/4. The

house also yielded oven no. 8, which was partially destroyed by the ditch underneath the Roman wall. The oven was horseshoe-shaped and measured 2.00×1.60 m. A concentration of cattle bones (cow) was discovered in front of it. Fragments of a grinding stone, ten complete ceramic vessels and some sherds, including a Krivodol type cup, a ceramic lid, *etc.*, were found at the same level. The rest of the finds included a chisel and a double spiral headed pin; flint cores, bone and antler artefacts, an ithyphallic male figurine, two seated female figurines and zoomorphic figurines. The same level yielded burnt human bones: no. 85 (boy, *juvenilis*) and no. 95 (male, *maturus*).

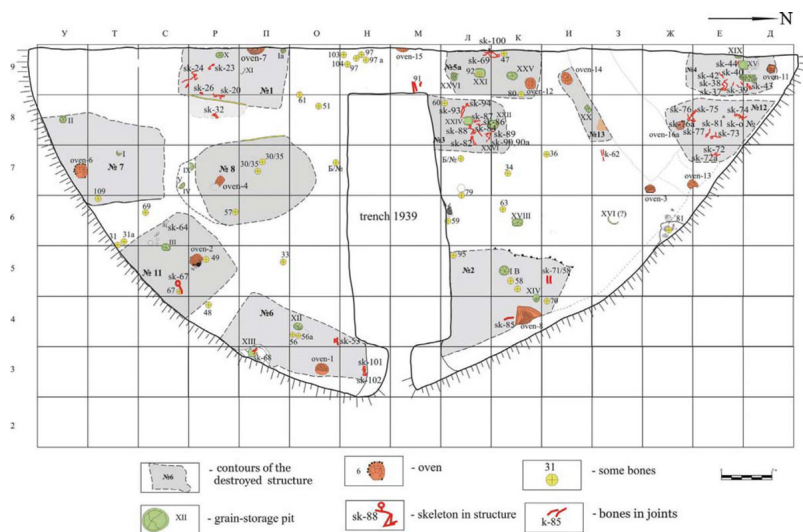


Figure 12.1. Plan of the Chalcolithic settlement at Tell Yunatsite

House no. 3

It was situated in sq K-Л/8-7 (Fig. 12.2a, b). Its southern part was destroyed by V. Mikov's trench, and its eastern part was strongly disturbed by the foundation trench of house no. 46 (Early Bronze Age XVI/XVII-1 construction level) and the grain storage feature no. XVII of the same house, both deeply cut into the Chalcolithic layer. The house was rectangular in plan, S-N oriented (with a

slight deviation), measuring 12.5×7.50 m. As it was not possible to define the delineation of the walls, the plan of the house was defined by following the debris outlines.

There were two grain storage features in the house, no. XXII and no. XXIV. Both were rectangular in plan with rounded corners and similar dimensions: 1.00×0.85 m and 1.07×0.85 m. It is these features that were interpreted as structures for meat preservation.⁵

Following the removal of the burnt house debris comprising fired pieces of wall plaster and pottery sherds, a feature (no. 4) was discovered. This is a bit confusing: if it is square in plan, how can it be cylindrically shaped? Do you mean “It was square in plan, and its lower part, made from clay, was formed into a cylindrical pedestal base measuring 7 cm high and 6 cm thick. This structure can be interpreted as a clay platform or a low chair.

Five human skeletons in various unnatural poses and burnt to varying degrees were unearthed on the house floor surrounded and covered by house debris and pottery sherds: no. 82 (girl, *infans II*), no. 84 (male, *maturus*), no. 86 (female, *adultus*), no. 87 (male, *maturus*), no. 88 (male, *maturus*).

A depression reaching 6.10–6.15 m was registered in the south-western part of the house. It was trough-shaped, NW–SE oriented and measured 2.50×2.00 m. The greater part of it was destroyed by V. Mikov’s trench. A parallel to this structure can be found in the Chalcolithic house at Drama-Merdžumekja, the so-called *Mulde*.⁶ The depression yielded burnt house debris, thick layers of ash, charcoal and charred grain concentrations, as well as two human skeletons, no. 93 (female, *juvenilis*) and no. 94 (female, *maturus*). Fragments of child’s bones (skeleton no. 93a) were found together with the bones of the adults.

Twenty-eight complete and fragmented ceramic vessels were discovered in the north-eastern part of the spot at 5.60–5.70 m underneath the highly-burnt house debris.

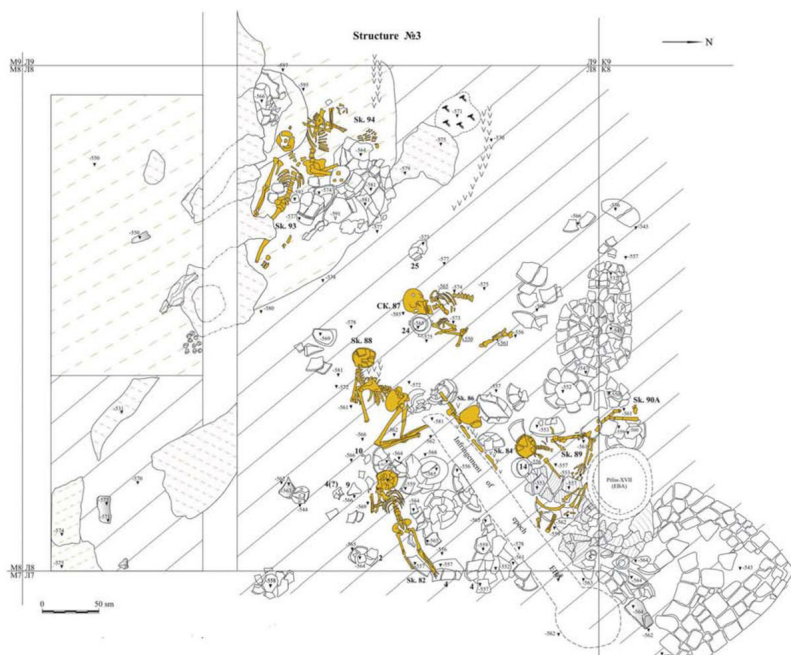


Figure 12.2. a, b. Structure no. 3.

House no. 5

House 5 was excavated in sq JI-K/9 next to the central cross-section of the tell. The house was partially excavated because it continued under the central cross-section. Since a complicated

stratigraphic situation was observed in the central cross-section, the record of the house excavation is difficult to interpret. There are two possibilities: either another house dated to a slightly later time span (House 5a) was located above this one or structure 5a was related to House 5.

Since it was not possible to define the exact boundaries of this house, its plan was drawn according to the delineation of the burnt debris covered by the debris of house 3. The house had a closely rectangular plan close measuring 6.00×4.50 m. Its remains were recorded at a depth of 5.11–5.20 m. The debris layer was up to 0.40 m thick. The oven (no. 5) and the clay grain storage feature were situated much higher than the human skeletons, which were lying on the house floor. It is certain that grain storage features no. XXI, XXV and XXVI (movable) were related to this house. Grain storage no. XXI was situated in the northern part of the house; it was slightly cut into the level, was rectangular in plan, measuring 1.00×1.10 m with walls 6 cm thick. Grain storage feature no. XXV was situated in the south-eastern part of the house. It was square in plan with rounded corners. Its walls were 0.80 m long and 6 cm thick.

Human skeletons in unnatural poses as well as individual human bones were discovered in this house similar to the houses already described. Skeleton no. 69 (female, *adultus*) was excavated next to the central cross-section, on the boundary between sq J19 and sq K9. Skeleton no. 100 (5–6-year-old child, *infans I*) was lying next to it. Single bones of skeletons – no. 47, no. 80 (a skull) and no. 92 (in grain storage feature no. XXI) – were found in the house as well.

Graphite painted bowls, two jars, cross-shaped figurines, a unique seated female figurine holding a child – *kourotrophos*,⁷ a ceramic disk with incised ornamentation, which was probably a fragment of a stamp seal, an antler hoe, *etc.* were discovered on the house floor.

House no. 4

It was situated in the northernmost part of the settlement's excavated area, in sq Д-E/8-9, and part of it continued under the central cross-section (Fig. 12.3a). Since house no. 4 was below the Early Bronze Age house no. 45 (depth 4.60–4.70 m), the upper part of its debris was destroyed by the construction of the latter. After removal of the burnt house debris, the floor of the house made from light yellow clay was reached at a depth of 4.70–4.90 m. The excavated part of the house measured 11×4 m, oriented N–S. Remains of walls made from grey-greenish clay were recorded; the 0.25 m thick clay bands without post holes marked the south and the east wall. A concentration of highly burnt wall plaster was discovered in the north-eastern part of the house. The following situation was revealed after removal of the burnt house debris: a movable ceramic grain storage vessel was lying on its side on the house floor. Its upper diameter was 1 m and the presumed height was more than 2 m. The rim vessel was decorated with incisions.

The base of an oval structure, 1.80×1.40 m in size (interpreted as oven no. 10 at the beginning), was found in the northern part of the house. Grain storage feature (?) XV, 0.60 m in diameter with 0.10–0.15 m wall thickness, was discovered next to it.

Oven no. 11, partially destroyed by the erosion of the slope, was excavated at the edge of the tell. The oven was horseshoe shaped, measuring 1.00×0.60 m, and had three floors indicating at least two renovations (Fig. 12.4).

Seven highly burnt human skeletons in unnatural poses were discovered on the house floor between the ceramic vessels. Skeleton no. 37 was of a male, *maturus*, no. 38 – a 5–6-year-old girl, *infans* (?), no. 39 – a female, *adultus*, no. 40 – a male, *juvenilis*, no. 42 – a male, *maturus*, no. 43 – a 7–8-year-old boy, *infans II* and no. 44 – a male, *maturus*.

More than thirty complete and fragmented ceramic vessels

were found on the house floor, including a unique graphite-painted *askos* (Fig. 12.3b, c). The rest of the small finds included a gold spiral-shaped bead, copper finger ring, bone awls, flint sickle implements, *etc.*

House no. 12

It was situated to the east, next to house no. 4, in sq Д-Ж/7-8 (Fig. 12.5a). The northern part of the house was situated on the very edge of the mound and was destroyed by erosion processes; the north-eastern part was destroyed by a Roman ditch. The house plan was close to rectangular; it measured 8.00 × 6.00 m and was oriented north–south. The south-western wall of the house was unearthed. It was recorded as a 30-cm wide band of grey-greenish clay. The upper level of the house was marked by fired pieces of wall plaster from the collapsed walls. The house floor was reached at a depth of 5.10–5.30 m after removal of the house debris. The upper parts of five structures cut into the floor were recorded at this level. They were excavated and studied by the Bulgarian–Greek team.⁸ The floor of a structure, which was round in plan, 0.90 m in diameter, made from river pebbles, ceramic sherds and baked clay, was discovered in the south-western house corner; oven 16 was very poorly preserved.

Eight human skeletons in unnatural poses and bearing traces of fire on the bones were found among the house debris and the fragmented ceramic vessels. Most of the skeletons were partially preserved: skeleton no. 72 was of a male, *adultus I*, no. 72a – a 7–8-year-old boy, *infans II*; no. 73 – an unidentified, *juvenilis*, no. 74 – a 35–45-year-old female, *maturus*, no. 75 – a 25–35-year-old female, *adultus*; no. 76 – a male, *maturus*, no. 76a – unarticulated human bones, unidentified, no. 77/81 – a male, *maturus* (Fig. 12.5b).

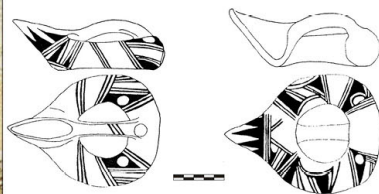
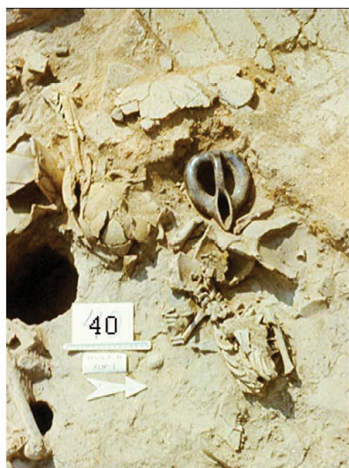
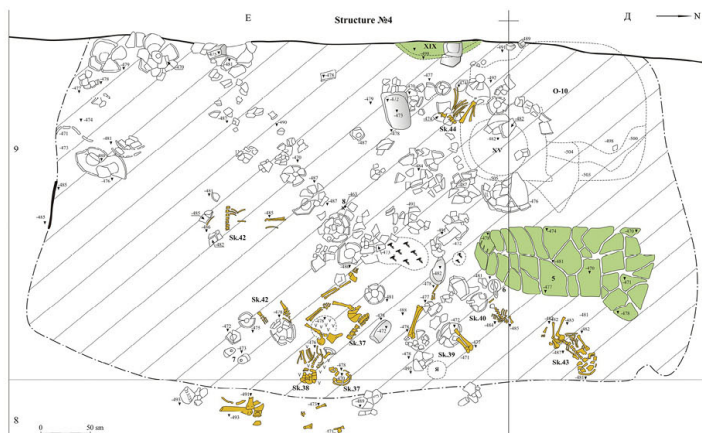


Figure 12.3. a. Structure no. 4, plan; b, c. Structure no. 4 with askos in situ.

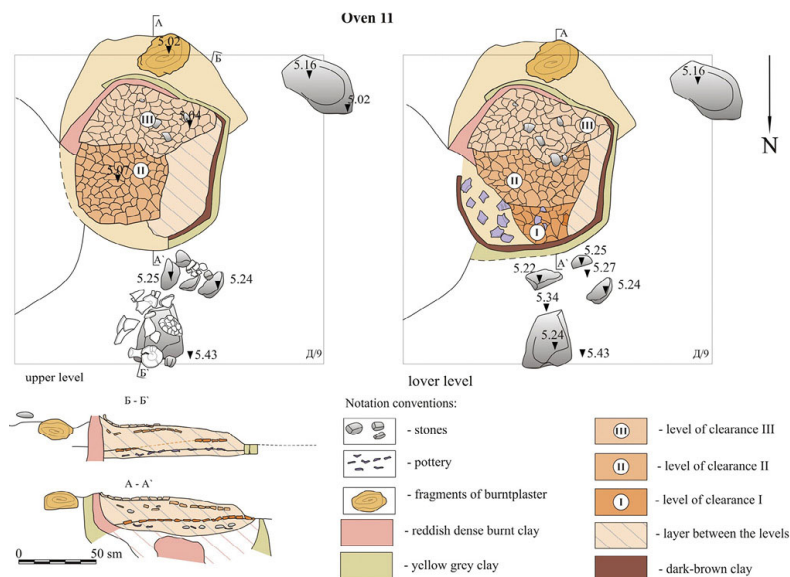


Figure 12.4. Structure no. 4, oven no. 11.

Twelve ceramic vessels, a ceramic lid and strainer and a ceramic miniature chair were found at the level of the house floor. An ornithomorphic figurine was discovered on the oven. Two copper shaft-hole axes (the Pločnik type) were discovered next to the western wall at a depth of 5.18 m, deeper than the floor level (Fig. 12.6).⁹

House no. 13

Only a small portion of house no. 13 was excavated, as the greater part was destroyed by the construction of the Early Bronze Age (EBA) ditch.¹⁰ The excavated part was situated in sq M3/9-8. The surviving part of the house was defined by the concentration of highly burnt debris. There were large concentrations of ash and charcoal as well.

The excavated part measured 8.00×5.50 m. The floor level was very badly preserved. The elements of the interior included oven no. 14, grain storage feature no. XX, almost rectangular in plan, and a structure made from river pebbles (or the floor of a

structure) which could not be reconstructed. Special attention should be paid to oven no. 14 (Fig. 12.7). It was horseshoe-shaped in plan, measuring 1.30×1.10 m, and had two floors. Part of the cupola of the oven, 0.12 m thick at the base, was detected. A nicely trampled platform (or part of the house floor?) was excavated to the north of the oven. An anthropomorphic figurine was discovered after removal of the upper layer of the oven. It is worth mentioning that provenance of figurines in Chalcolithic settlements is often related to ovens.

Five houses were excavated in the southern sector.

House no. 1

House no. 1 was excavated in sq O-P/9-8 (Fig. 12.8a). Part of it continued under the central cross-section. The excavated part was almost rectangular in plan and was oriented north-south. The stratigraphic evidence provides information that this house was situated at a level which was very high, and its debris was levelled during the planning and construction of the earliest EBA settlement.¹¹ The remains of the debris were situated in sq O-P/9-8.

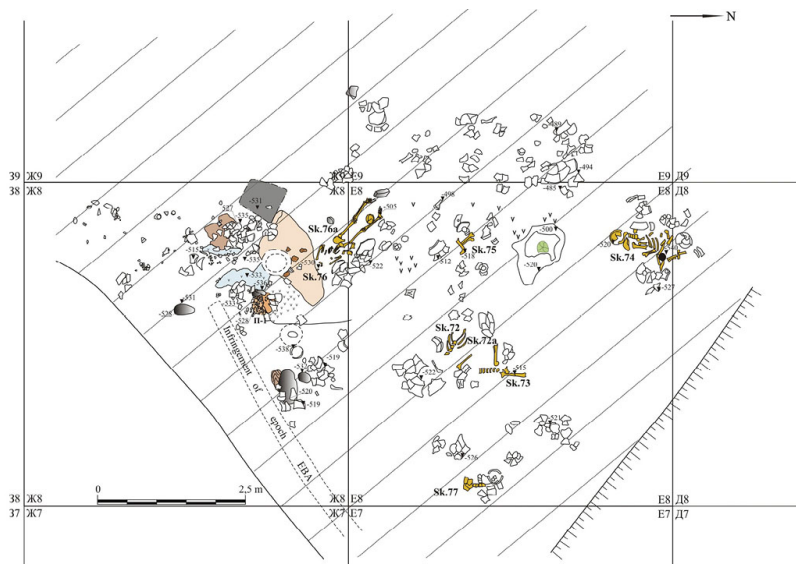


Figure 12.5. a. Structure no. 12, plan; b. Skeleton no. 76.



Figure 12.6. Structure no. 12, copper axe (the Plochnik type) in situ.

An eight-metre-long band of yellow clay, which marked the eastern wall of the house, was excavated. No post holes were found. The excavated part of the house measured 9×4.50 m. The floor was at a depth of 6–6.10 m. There were two grain storage areas (no. I and no. X) and a badly destroyed oven no. 7. Four human skeletons were found on the floor.¹² The skeleton of a male, *maturus*, no. 24 (Fig. 12.8b) lying face down was found next to the southern wall. The skeleton of a 3-year-old child (a girl?), no. 23, was found to the west of no. 24. The skeleton of a 16–8-year-old boy, no. 26, was partially preserved. The skeleton of a young boy whose bones were partially burnt was lying next to skeleton no. 20.

Forty-one complete and fragmented ceramic vessels, five bone figurines, a head of a ceramic figurine, a miniature ceramic vessel, ceramic lids as well as stone and bone tools were discovered after removal of the house debris.

House no. 8

The house was located in sq O-P/7-6. It was badly destroyed by

fire and the construction of the earliest EBA settlement. Since the outlines of the house were defined by the concentration of burnt house debris and the thick layers of ash, especially in sq O-II/7, it was not possible to draw an exact plan. It was accepted that the house had a closely rectangular plan, oriented NW-SE and measuring 12.00×5.40 m. The floor level was reached at a depth of 6.50–6.60 m. Part of the western wall was excavated. There was a horseshoe-shaped oven (no. 4) measuring 1.40×1.20 m. The oven probably had two floors, and the upper one was destroyed during the construction of the earliest EBA settlement. Three round grain storage features, no. IV, V and IX, were found in the southern part. Most probably, they were part of the interior of this house. Krivodol cups, two seated anthropomorphic figurines and stone tools were discovered on the house floor.

Unarticulated human bones, parts of skeletons no. 30/35 and no. 57, were found in the house.

House no. 6

House 6 was situated on the very edge of the tell, in the north-eastern part of the southern sector, sq O-P/3-4. The northern part was considerably destroyed by the trench made in 1939, and the eastern part was destroyed by the trench under the Roman wall and the construction of house no. 52 of the EBA XVI/XVII-1 construction level. The location of the house on the edge of the tell resulted in its erosion. The house plan was close to a rectangle, oriented NE–SW. It measured 15×10 m. The upper level of the burnt house debris was registered at a depth of 6.10 m. The floor was partially preserved only in the north-western and the southern parts. The house floor had a 0.20–0.25 m slant to the east.



Figure 12.7. Structure no. 13, oven no. 14.

There were two grain storage features (no. XII and XIII) as well as an oven (no. 1) in the house. The oven was situated at the very edge of the tell; it was round in plan and 1.20 m in diameter. The oven was used for a long period, as indicated by the nine oven floors which formed a 0.80 m thick layer. It seems possible that this oven had been used in the earlier construction level.

Grain storage feature no. XII was oval in plan and measured 0.70×0.50 m. It is worth mentioning grain storage feature no. XIII, which was round in plan and 0.90 m in diameter. It was situated on the slope of the tell and was partially destroyed by EBA activities. Grain storage feature no. XIII yielded a skeleton (no. 68) which was partially destroyed by the construction of the Roman ditch.

Five more human skeletons lying on various levels were discovered underneath the house debris: no. 53 – a female (?), no. 56 – a 30–5-year-old male, *adultus*, no. 56a – a baby girl, *infans*,

no. 101 – a girl, *infans II* and no. 102 – a girl, *infans I*.

The house yielded ceramic vessels, fragments of grinding stones as well as zoomorphic, ornithomorphic and anthropomorphic figurines.

House no. 11

The house was situated in sq P-C/5-6, at the edge of the tell, on the same line as house no. 6. It was badly destroyed by the construction of the EBA houses no. 51, 48/53 (construction level XVI-XVII-1).¹³ The house debris was practically destroyed by the construction of the earliest EBA settlement. In addition, the south-eastern part of the house was destroyed by erosion processes. The floor was badly preserved; it was plastered with yellow clay, and several patches of the floor plaster survived. The registered area measured 11.00×5.50 m; it was almost rectangular in plan and oriented NW–SE. It was not possible to define the outlines of the walls.

The interior features of the house included oven no. 2, measuring 1.30×1.20 m, which was reconstructed, and the remains of a destroyed gran storage feature (no. III). The house yielded remains of unarticulated human skeletons: bones from skeletons no. 49 (boys, *juvenilis*) and 64 (boys, *juvenilis*), no. 67 (female, *maturus/senilis*) and no. 67a (child, *infans I*).

House no. 7

The house was located in sq C-Y/7-8 at the edge of the Chalcolithic settlement, and for this reason its southern part was destroyed by erosion. The central part was destroyed by large EBA pits. This house was defined by a concentration of highly burnt house debris, ash and charcoal. It was oriented N–S, almost rectangular in plan measuring 15.00×9.00 m. The house floor was reached at a depth of 6.70–7.18 m after the removal of the debris. The floor was slanting to the south. The interior features included an oven (no. 6) and two grain storage features (no. I and

II). Oven no. 6 measured 1.40×1.20 m and was well preserved. Its walls were 0.13 m thick at the oven floor. Nine small post holes from the construction of the oven cupola were registered. The oven had two floors. The grain storage features were round in plan, measuring 0.90 m in diameter. Traces of renovation were recorded.

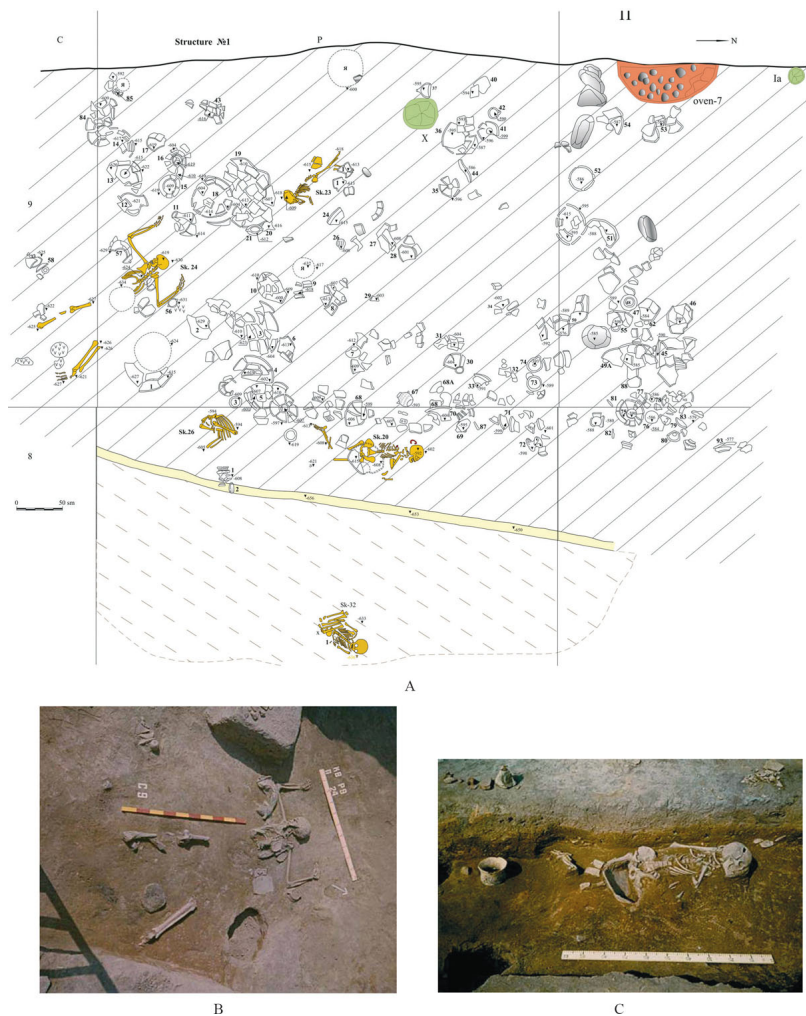


Figure 12.8. a. Structure no. 1, plan; b. Skeleton no. 24, c. Skeleton 20.



Figure 12.9. Anthropomorphic figurine from Structure no. 7.

Complete and fragmented ceramic vessels (a cup, a graphite-painted bowl and a jug) were found on the floor. A ceramic convex lid and other vessels were discovered next to grain storage II. A concentration of carbonized grain (*Triticum monococum*) and

wood was also registered there. Grinding stones were found immediately to the south of oven no. 6. Two of them were considerably large in size, $0.73 \times 0.35 \times 0.30$ m. Bone awls, a copper hook, ornithomorphic, zoomorphic and anthropomorphic ceramic figurines were also found in the house. Special attention has to be drawn to a female figurine seated on a chair (Fig. 12.9). It is similar to the well-known “Venus of Pazardzhik”.¹⁴ The figurine from Tell Yunatsite finds close parallels in Telish-Redutite¹⁵ and Luga.¹⁶

Conclusions

Thirteen buildings were excavated from the latest Chalcolithic settlement at Tell Yunatsite. They provide important information about the plan, size, construction techniques and interior of the houses. All houses were built on the ground, and their plan was close to a rectangle. It is possible that there were screen/partition walls in some of the houses. It seems possible that house no. 2 had two stories. The walls were evidenced as grey-greenish or grey-yellowish 0.25–0.30 m wide clay bands. This fact provided grounds to suggest that the exterior walls were made in the *pisé* (rammed earth) technique, i.e. they were entirely made from clay. However, it has to be mentioned that the burnt house debris yielded pieces of daub bearing imprints from posts. This allows the assumption that two construction techniques were used in the house construction – the *pisé* technique and the wattle-and-daub (a construction made from wooden posts and wickerwork, both sides of which were plastered with clay). Combination of these two techniques in the house construction was recorded in the contemporary settlement of Pietrele in present-day Romania, where the interior screen/partition walls were made from wattle-and-daub, and the exterior walls were constructed by the *pisé* technique.¹⁷ It has to be pointed out that the houses of the Telish-Redutite III, which was contemporary to the latest Chalcolithic settlement at Tell Yunatsite, were constructed by using the *pisé*

technique only.¹⁸

The excavation of the demolished houses provides abundant information on important details of the house interior: ovens and grain storage features. All ovens consisted of one chamber and were horseshoe-shaped or round in plan. The cupolas were not preserved. In one case, traces of thin wooden post for making the construction of the cupola were recorded (oven no. 6). Traces of renovation or reconstruction were often recorded, which indicates that they functioned for a long period. The floor of the oven was made from pebbles taken from the river flowing through the tell. However, pottery sherds were often used instead of pebbles. Oven no. 10 had a special feature for collecting the ash.

Almost every house had grain storage features, most often more than one. Most frequently they were made on the ground, but occasionally they were cut into the floor. They were round, oval or nearly rectangular in plan. The excavation of grain storage features no. XXII and XXIV revealed that they were used not only for storing grain but for preserving meat and meat products as well.¹⁹

The large size of the excavated area allows us to discuss not only the house plan but the settlement plan of the excavated part of the latest Chalcolithic settlement at Tell Yunatsite. The location of the houses, in general, indicates a settlement plan which combined circular and linear organization. Four houses (nos 7, 11, 6 and 2) were located on the outer outline (perimeter) of the settlement and were elements of the circular system. Their walls formed an enclosure which, in combination with the height of the hill (the tell was *ca.* 4 m high at that time), served as a significant fortification facility. It seems possible that the settlement was surrounded by some kind of an enclosure (a palisade?) which, due to its position on the edge of the settlement, was destroyed by erosion processes and construction activities in later periods (especially in the Roman period).

The positioning of the houses on the inner part of the

excavated area adhere to a linear system. For example, houses no. 4, 12, 13, 5, 3 and 1 form a line crossing the central part of the village. Moreover, some of the houses are grouped in pairs. They were situated close to each other and shared the same orientation (along the N–S axis); for example, houses no. 4 and 12 and houses no. 5 and 3. House no. 13 was on the same line as houses no. 4, 12, 5, 3 and 1, but it was oriented SW–NE and thus did not have a pair. House no. 1 did not have a match either, and it was oriented N–S. In the central part of the north sector, there was an area free from houses.

Notes

- 1 Mikov 1940, 56–62.
- 2 Tell Yunatsite 2007; Mazanova 2011, 9–23.
- 3 The slant from north to south is also very well expressed in the Early Bronze Age layer.
- 4 The human skeletal remains were studied by A. Buzilova and St. Zäuner (Buzilova 2005, 107–13; Zäuner 2006, cat. 110–40), and certain differences exist in their anthropological definition. The results of A. Buzilova's study are used in this article.
- 5 Aslanis and Boyadzhiev 2004, 374, figs 2–5; Terzijska-Ignatova 2007, 227–37.
- 6 Lichardus *et al.* 2000, 52–53, Abb. 20
- 7 Mazanova and Terzijska-Ignatova forthcoming.
- 8 Boyadzhiev *et al.* 2011b, 42, fig. 2.
- 9 Mazanova 2004, 394, figs 1, 3.
- 10 Tell Yunatsite 2007.
- 11 Tell Yunatsite 2007, 48–50.
- 12 Mazanova 1992, 248–61; Mishina 1998, 244–8.
- 13 Tell Yunatsite 2007, 27, 4.
- 14 Mazanova and Terzijska-Ignatova forthcoming.
- 15 Gergov 2000, 101–2, figs 1–2.
- 16 Merkyte *et al.* 2005, 56, fig. III. 23.
- 17 Hansen and Todaras 2009, 93.
- 18 Gergov 1992, 351; Gergov 2004, 438.
- 19 Aslanis and Boyadzhiev 2004, 374, figs 2–5.

Late Chalcolithic cult tables from Tell Yunatsite, Bulgaria

Stoilka Terzijska-Ignatova

Introduction

In recent years, the archaeological literature has shown increased interest in one particular category of clay finds: Neolithic and Chalcolithic sites over a vast area including Anatolia, the Balkans, and South-East and Central Europe have yielded large quantities of the so-called ceramic “cult tables”, described in various publications by a wide range of terms. The problem with precisely defining these objects is uncertainty surrounding their exact function.¹ The fact that some of them have a receptacle,² presumably for pouring/storing liquids, is used by some specialists as a reason to define them as triangular or quadrangular vessels on legs, with a flat or concave surface.³ According to other specialists, the zoomorphic shape of the body as well as zoomorphic heads (or heads and tails) puts some of these artefacts in the classification of zoomorphic vessels.⁴ P. Detev also used the terms “table-like” or “zoomorphic vessels” when describing the tables with zoomorphic decoration from Yassatepe.⁵ In other publications, these objects are described as small altars, lamps, vessels for paints or pigments, *etc.*⁶ Their function as vessels for burning incense or fragrant (anaesthetic?) substances is also difficult to prove.⁷ Some authors

believe that some of these finds are copies/models of large-size altars such as those discovered during archaeological excavations and had the same function.⁸ The information provided by V. Mikov and N. Dzhambazov about the two cult tables found in the Devetaki Cave is also very interesting; at the moment of their discovery they were filled with ash. However, the authors neither provide further details regarding the ash, nor make any attempt to interpret the fact.⁹

The term “cult tables” was introduced by P. Detev.¹⁰ Like the majority of authors, he used it to describe both types of finds: tables with and without a receptacle.¹¹ V. Mikov also divides the tables into two groups - ones with a flat surface and ones with a receptacle.¹²

The finds from Bulgaria (mainly those dated to the Neolithic) have been studied by V. Nikolov and the results are published in a monograph.¹³ He presents a review of the names of these objects in various publications and chooses the most often-used and universal term, that of “cult tables”.¹⁴ He uses the same name in a review of Chalcolithic finds to mean both the objects with a receptacle and those with a flat table surface.¹⁵ In some of his other publications, the same author differentiates between Chalcolithic tables with inserted receptacle and those with a flat table surface but does not propose different terms for each type.¹⁶ I. Vaysov divides the cult tables into those with a flat table surface and those with a low border.¹⁷ V. Bozhilov divides Late Chalcolithic tables from Kapitan Dimitriev into tables with and without a receptacle.¹⁸ S. Chohadzhiev defines two categories: “cult tables” (with a flat table surface and a receptacle) and “altars” (a flat table surface with a conical receptacle on it).¹⁹

The above shows that most authors use the word “tables” (except for those who regard them as vessels), prompted by the outer appearance of the objects - they stand on feet and probably something had been placed on (or poured into) them. This function is indicated by the presence of receptacles (different in

shape and depth) which are described by words designating vessels/storage containers for liquids: “small trough”, “small basin”, or “reservoir”.²⁰

Summarising the information presented above, a conclusion can be drawn that various researchers, although agreeing on the ritual function of these objects, use various names implying concrete meanings. In this way, they assume what the possible function might have been, without actually offering any concrete proof.²¹ Therefore, the use of a more adequate term related to the “construction” of these objects rather than their function (as it is clear that the latter is impossible to be firmly defined for the moment) would be more logical.

At present, any attempt to answer the question whether these objects were used in domestic ritual practices as small altars (providing a special place for figurines or other cult objects in houses), as vessels for storing liquids (related to *libacio* rituals), as altars (for burning various substances), as containers for pigments (for painting ritual decorations on the body or other cult-related objects), as incense-burners (for burning fragrant or anaesthetic substances) or as oil lamps (used for illumination in the house or maintaining a ritual fire) lacks firm arguments and risks over-interpreting these artefacts.²² However, it can be pointed out that the various shapes and ornamentation can hardly be regarded as random, *i.e.* there are certain characteristics common to all artefacts, suggesting a similar function over a long time span (Neolithic and Chalcolithic). At the same time, there are specific features suggesting that certain types of these objects had special functions or a special meaning was encoded in them.

Another question which remains unanswered refers to the “functioning” of these artefacts as one element in a system: in a “set” together with other cult objects (*e.g.* various types of tables, anthropomorphic and zoomorphic figurines and vessels) forming “ritual assemblages” used in various ritual practices. However, the scarce information about the context in which these finds were

discovered does not allow reliable reconstructions.²³ On the other hand, in very few cases can we be certain that the finds came from closed assemblages, *i.e.* when excavating a house, for example, we cannot be certain that the finds and structures provide correct information about the house interior and objects used by its inhabitants under normal circumstances, instead of merely offering a “snap shot” of the moment when the people left their house under extreme circumstances. It is possible that the house inhabitants had enough time to take away some or all belongings valued by them, undoubtedly including cult objects, before the house was consumed by fire, demolished, or abandoned for reasons related to constructional problems with the building, an earthquake, enemy attack, *etc.*

During the excavations of Tell Yunatsite,²⁴ a total of 56 complete and fragmented cult tables were found inside the houses, as well as between houses. Several finds derive from the EBA layer but they are secondary deposits. Other finds, despite being registered in the final Late Chalcolithic horizon, could be assigned to the Early Chalcolithic due to certain particularities in their style and decoration.

All cult tables from Yunatsite are made of fine clay with small mineral temper. They have been shaped in several ways: modelled from a single piece of clay; with legs attached to an already-made surface; or with the vertical walls of the upper part attached to a horizontal base with legs.

The upper surface of the artefacts is well-made – smoothed to a polished shine – in contrast to the lower “invisible” part that in most cases is roughly smoothed.

Some of the finds are decorated with incised geometric ornamentation (sometimes white-incrusted), painted with graphite, or, rarely, there are traces of red paint.

Due to the limited space of this paper, the two types of cult tables from Tell Yunatsite and their sub-types and variants will be presented more generally; however, several finds will be

commented on in more detail due to their specific features.

A classification is offered on the basis of the complete finds along with fragmented but identifiable cult tables. Primarily it takes into account the common traits that divide them into two types: triangular (with three legs) and rectangular (with four legs) (Fig. 13.1). The next taxonomic orders are according to shape, construction particularities and decoration. Many fragments such as legs and parts of surfaces do not present enough information as to their specific type or sub-type. Such fragments are more suitable for stylistic rather than typological analysis. Some authors argue that the fragmentary state of the cult tables is due to deliberate breakage during ritual activities.²⁵ J. Chapman has suggested deliberate fragmentation on the basis of experimentation and indirect evidence for almost impossible breakage during “normal use.”²⁶ According to H. Schwarzberg, however, fragmentation was not deliberate but a result of routine use of the artefacts.²⁷

The main classification traits are:

- Shape (kind): triangular or rectangular;
- Construction particularities (type): with flat upper surface, with concave recipient or with conical upper vessel;
- “Simple” or with some zoomorphic or anthropomorphic elements (sub-type).

Triangular (with three legs)

With concave recipient

Zoomorphic

There are two triangular tables with concave recipient and zoomorphic modelling of the body and legs (Fig. 13.2.1, 13.2.6). Perhaps on the front there were zoomorphic knobs/heads that are presently missing. One fragment has a white-incrusted geometric ornament (Fig. 13.2.1), while the other has incised meanders symbolising eternity and the cycles of nature and reproduction. It is noteworthy that although the ornamentation is similar, the

incised motifs are combined differently.

Rectangular (with four legs)

With flat upper surface

“Simple” form

The tables of this sub-type are rectangular or close to square (Figs 13.2.2–5, 13.2.7–11). They are flat (or slightly convex) with four cylindrical or conical legs. All but one are non-decorated, the exception being a fragment with incised decoration (Fig. 13.2.10). Some scholars consider these as “furniture models”. However, I would argue that the attachment of legs to the surface with an arch rather than at right angles suggests that they are cult tables.

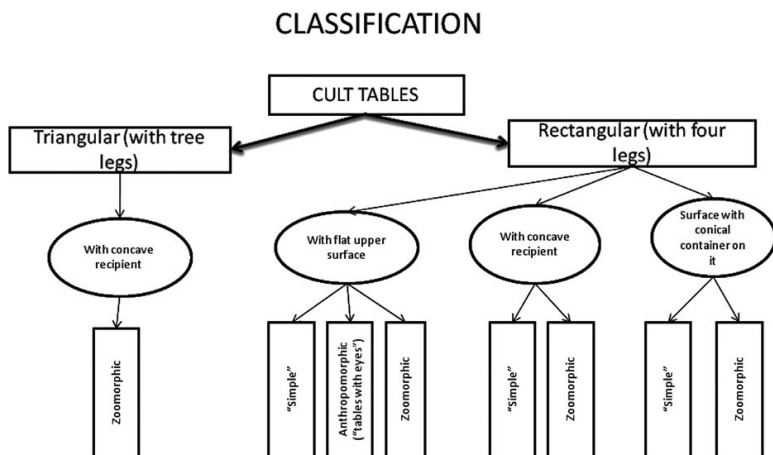


Figure 13.1. Cult tables from Tell Yunatsite, classification.

Zoomorphic

Three cult tables from Tell Yunatsite are differentiated as a separate type based on their construction and stylistic characteristics. They differ from other Chalcolithic cult tables from Bulgaria and neighbouring regions. The three cult tables from Tell Yunatsite presented here have typical zoomorphic features but their “body” is flat (slightly convex in one case), horizontal and without a receptacle (Fig. 13.3.1–3). These artefacts can be

defined as zoomorphic “figurines-tables”.²⁸

Only half of the first table is preserved (Fig. 13.3.3). The legs, which had an oval section, are missing. The table surface is flat and horizontal. It is worth mentioning that it is not rectangular; it is wider at the corners where it rested on the legs and it narrows in the middle. Being shaped this way, the table anatomically resembles the back of a massive animal whose body is wider at the pelvis and hips. The corners are rounded and slightly thickened, emphasising the pelvic bones. Apart from this, the upper part of the table surface is decorated with incisions (probably depicting fur?). The apexes of the inscribed angles point to the middle of the table surface, the “backbone”, in the way that the fur on the back of cattle points outwards from the spine.

The back part of the second table is also preserved and in this case, there is an indicative element: a tail (Fig. 13.3.2). The preserved leg is zoomorphic as well. The table surface is slightly convex marking a convex animal spine. The table is not decorated. It also has another element which is typical of a large number of the zoomorphic and all of the ornithomorphic figurines from Tell Yunatsite – a vertical opening in the central part of the body.²⁹

There is no doubt that the third table, also the best preserved (only the legs are missing), is the most interesting of the three (Fig. 13.3.1). The table surface/“body” is almost quadrangular with rounded angles. The corners, where the legs were, are thickened and slightly protruded. Similar to table no. 3 of Figure 13.3, they mark the shoulders of an animal. A tail was attached at the back but is now missing. The animal head is preserved – it is triangular, shaped by pinching the clay. Again, there is an opening in the central part of the table surface. Except for the marked anatomical features of the animal, there is no additional ornamentation on the table.

The three tables have an additional special feature – an opening in the central part of the body – which represents another common characteristic between the zoomorphic figurines and the

zoomorphic tables with a flat upper surface.[30](#)

Anthropomorphic (“tables with eyes”)

Authors who have published on cult tables with pairs of eyes are unanimous about the period they date to - the Late Chalcolithic. With only a few exceptions, the cult tables come mainly from tells situated in present-day South Bulgaria and all the artefacts in general are found in territories covered by the Late Chalcolithic Kodzhadermen-Gumelnitsa-Karanovo VI culture.[31](#)

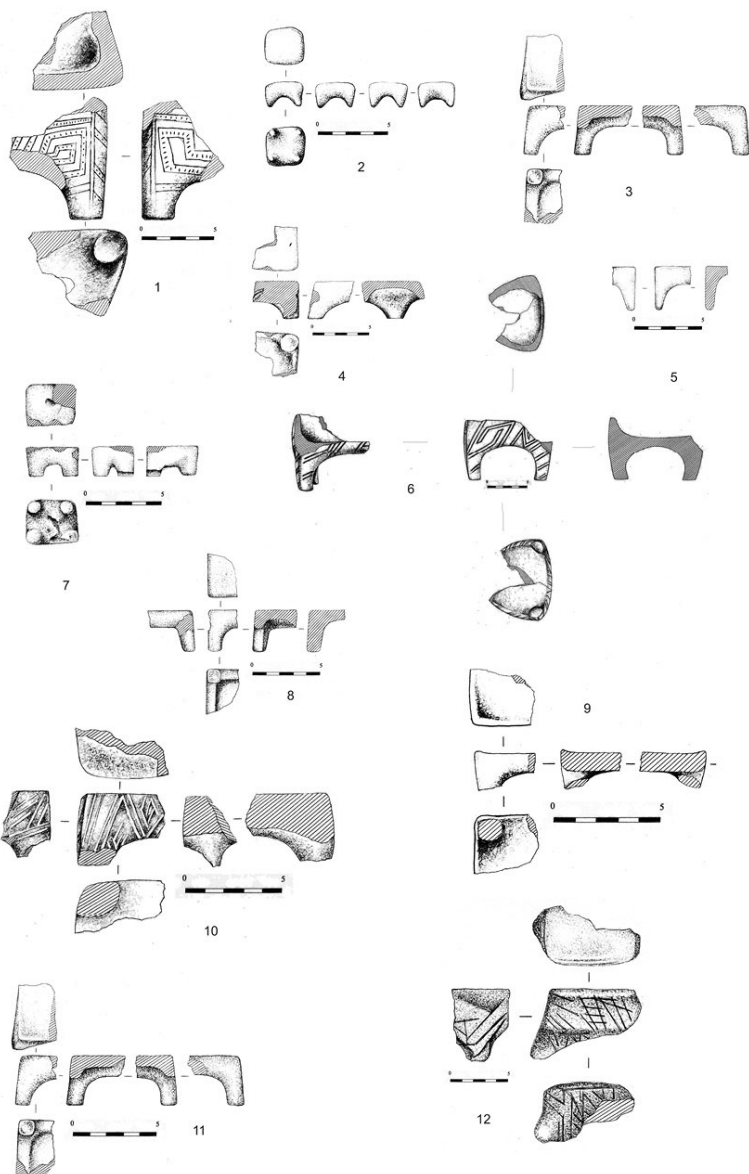


Figure 13.2. Cult tables from Tell Yunatsite: 1, 6: triangular, with concave recipient, zoomorphic; 2-5, 7-11: rectangular, with flat upper surface, "simple form"; 12: rectangular, with flat upper surface, zoomorphic.

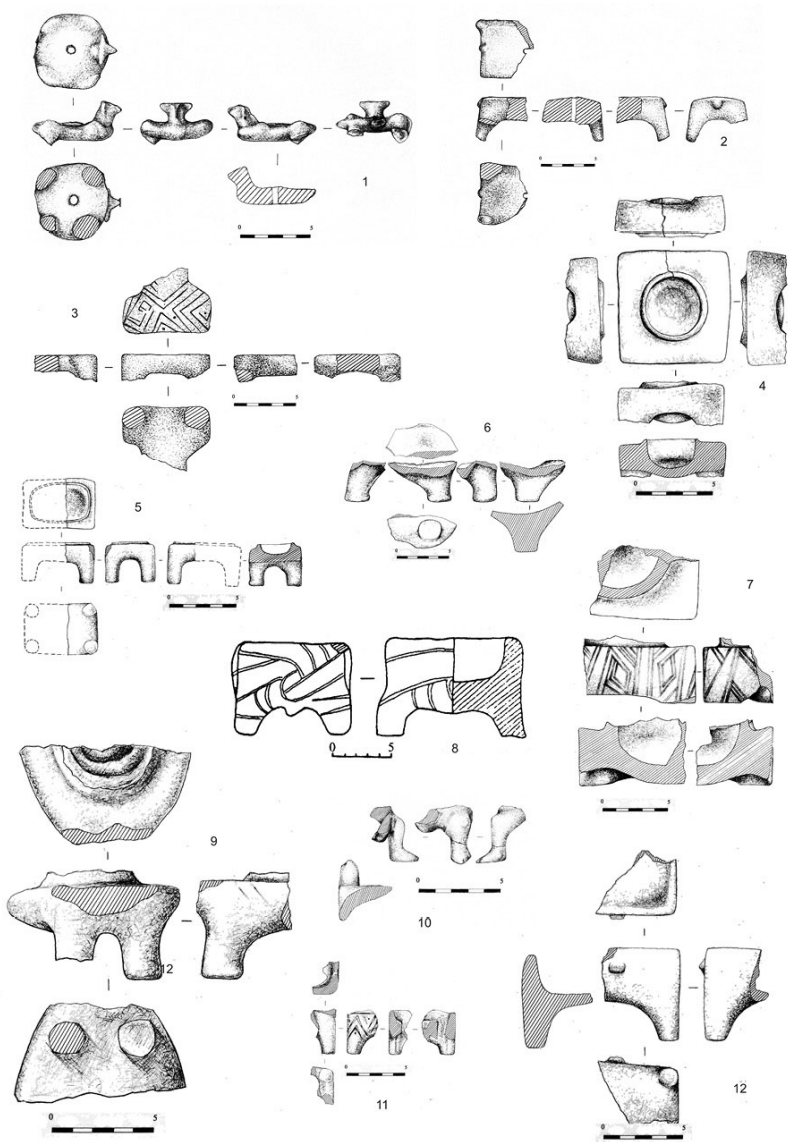


Figure 13.3. Cult tables from Tell Yunatsite: 1–3: rectangular, with flat upper surface, zoomorphic; 4, 5, 7, 11: rectangular, with concave recipient, “simple” form; 6, 8–10, 12: rectangular, with concave recipient, zoomorphic.

Some authors believe that the eyes are an anthropomorphic

feature and others define them as “apotropaic” or “magic.” In most cases the eyes are semi-oval, though there are some which are triangular and almond-shaped.

The “tables with eyes” from Yunatsite have a rectangular shape and flat surface (Fig. 13.4.1–4). The lower part of the vertical sides is arch-shaped, thus creating an impression of vaulting. The legs are solid, vertical or slightly slanting and have a circular or triangular cross-section. One table is like a hollow parallelepiped (Fig. 13.4.3). Usually the semi-oval eyes are incised on one of the long sides. Only one table has triangular eyes (Fig. 13.4.1). According to V. Nikolov, the eyes’ elongated, semi-oval, almond-like shape incorporates the Chalcolithic “tables with eyes” in the Mother-Goddess paraphernalia.³²

With concave recipient

“Simple” form

These are rectangular or square with cylindrical or conical shape (Fig. 13.3.4, 5, 7, 11). Some of the finds are not decorated, others have either graphite-painted or incised geometrical ornamentation, and in one case there is white-incrusted decoration (Fig. 13.3.11).

Most of the authors who have studied Neolithic and Chalcolithic cult tables thoroughly believe that they had a ritual function and define them as “altars” to deities (mainly the Mother Goddess). The M-shaped cult tables with a receptacle, and the impression of a “frog pose” that they create, are associated with the lower part of a woman’s body in a position of giving birth.³³

The receptacle, which is believed to represent a womb (of the Mother Goddess), can accommodate one or several objects/ingredients which can give birth to a new life cycle or the re-birth of a person or animal that has already disappeared (*i.e.* died). This symbolism is the basis of the fertility cult related to all – nature, the settlement, and family.³⁴

Zoomorphic

Despite their schematic and geometric shape, some of the tables from Yunatsite portray specially-modelled parts that can definitely be identified as zoomorphic – top surface, legs, presence of a stump-tail (Fig. 13.3.6, 8–10, 12; Fig. 13.4.8). In some cases, the very “posture” of the artefact reminds us of the posture of an animal. Many aspects contribute to this effect, such as the various shaping of the front and hind legs, their different height, the angle at which they are linked to the body, the asymmetrical “vaulting”, and the convex (protruding) lower part representing the belly of the animal.

One of the fragments has a relief knob between the legs, which can be seen as a bovine anatomical trait – the emphasised and bulging brisket (Fig. 13.3.10).

There is only one almost-complete zoomorphic table (Fig. 13.3.8). It is rectangular in shape, has a deep recipient, and the only missing part is the zoomorphic head once placed on the front rim. In addition, it has a stump-tail and an emphasised zoomorphic shaping of the legs. Both front and hind legs are realistically rendered, the anatomical bulging of the heel of the hind legs and “protrusion” of the stomach have also been emphasised. Cult objects with similar form are known from other Chalcolithic sites but they have not been identified as zoomorphic. However, a comparison with objects already determined as zoomorphic speaks strongly for the animal characteristics of artefacts currently unrecognised as zoomorphic.

Surface with conical container on it

“Simple” form

The table is square in shape, non-decorated and with four legs that have an oval cross-section. The container is missing. The lower side of the surface has a semi-spherical thickening similar to that on tables with concave recipient (Fig. 13.4.10).

Zoomorphic

Fragment of a table with preserved leg. The container is missing, so is the zoomorphic head that used to be between the legs. There is a graphite-painted ornament (Fig. 13.4.11).

The cult table assemblage from Yunatsite has numerous parallels in the Late Chalcolithic sites of Kodzhadermen-Gumelnița-Karanovo VI and Krivodol-Salcuța-Bubanj Hum Ia cultural complexes but at the same it presents some new types and local particularities.

The various views on the function of the cult tables have already been mentioned above. One of these views, arguing that they are a miniature equivalent of large altars³⁵ used during various rituals and imitating the shape of monumental altars and table/altars, is supported by evidence found during excavations of sanctuaries where large cult features have been uncovered.³⁶ A large half-destroyed building was excavated in Bagachina that contained two big cult tables made of clay and surrounded by pithoi. The excavators interpreted the building as a “ritual house”, sanctuary or “temple”.³⁷ Similarly, clay fragments of the upper surface and two legs of a massive table (“podium”) were found during the excavation of Building 3 from the last Late Chalcolithic settlement at Yunatsite.³⁸ Despite the lack of direct archaeological evidence, we can suggest that the cult tables were used as “domestic altars” just as the large altars and sacrificial tables were used in communal rites and rituals.

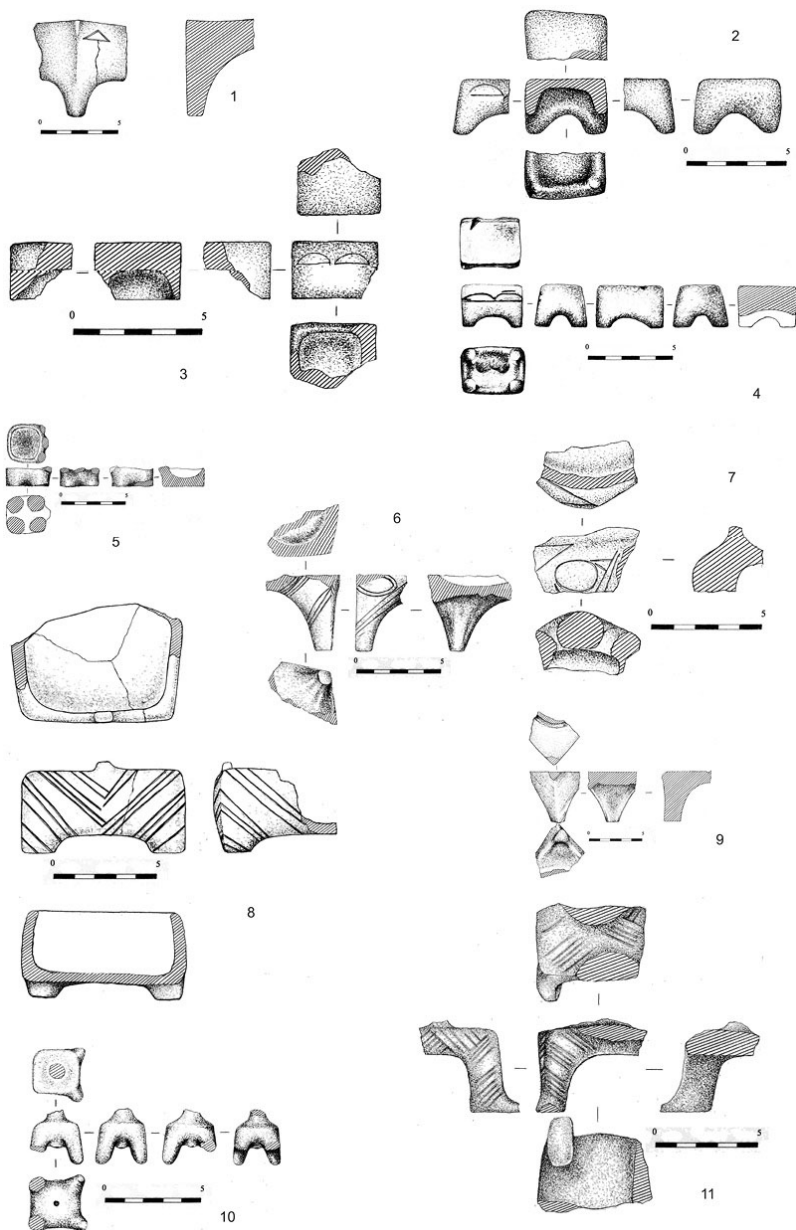


Figure 13.4. Cult tables from Tell Yunatsite: 1–4: rectangular, with flat upper surface, anthropomorphic (“tables with eyes”); 5–8: rectangular, with concave recipient, zoomorphic; 9–10: rectangular, surface with conical container on it, “simple” form; 11– rectangular, surface with

Conclusions

Regretfully, the cult tables from Tell Yunatsite presented here do not shed light on the function of these objects; their role and place in the rituals of prehistoric people also remain unclear. However, they contribute to the typological variety of these artefacts and are proof of complex abstract ideas. Nature and fauna were very important for the Chalcolithic people inhabiting Tell Yunatsite. Directly influenced by the environment, inhabitants formed their beliefs and developed their religion and mythological system. They manufactured special objects bearing symbolic meaning and used them in various rituals. However, the concrete meaning and function of these artefacts remains a hypothesis.

Notes

- 1 Nikolov 2007, 9; Schwarzberg 2003; Schwarzberg 2005b, 302–6.
- 2 In this article, I use the term “receptacle” to summarise the meanings of words used for describing vessels for storing liquids, but where a different function is also possible (Andreichin *et al.* 1973, 95).
- 3 Schwarzberg 2005a, 255; Schwarzberg 2005b, 247.
- 4 Balabina 2001, 17.
- 5 Detev 1960a, 26–8.
- 6 Nikolov 2007, 9; Schwarzberg 2003, 79–80 with references.
- 7 Sherratt 1991, 53.
- 8 Stanković 1986, 92; Todorova and Vaysov 1993, 216.
- 9 Mikov and Dzhambazov 1960, 94–5.
- 10 Nikolov 2007, 9–11.
- 11 Detev 1948, 9.
- 12 Mikov 1922–1925, 45.
- 13 Nikolov 2007.
- 14 Nikolov 2007, 9–11, 113–28.
- 15 Nikolov 2007, 113–28.
- 16 Nikolov 2002, 324; Nikolov 2006, 126–30.
- 17 Todorova and Vaysov 1993, 215–16 with ref.

- 18 Bozhilov 1999, 97.
- 19 Chohadzhiev 2006, 37.
- 20 Andreichin *et al.* 1973, 41, 382, 412, 873.
- 21 Schwarzberg 2003, 80–1.
- 22 Schwarzberg 2003, 79.
- 23 Schwarzberg 2003, 81.
- 24 Tell Yunatsite is situated in the western part of Upper Thrace, near the village of Yunatsite, Pazardzhik region, Bulgaria. It is a multi-layer settlement and was inhabited over several millennia – from the Chalcolithic until the Late Middle Ages. The tell was first excavated in 1939 by V. Mikov (Mikov 1940) and since 1976 regular archaeological excavations have been carried out there (Tell Yunatsite 2007; Mazanova 2011). The thickness of the strata is about 11 m. So far, layer A (Iron Age, Roman and Mediaeval periods) and layer B (17 Early Bronze Age I–III levels) have been excavated. The excavation of layer V (dated to phase 3 of the Late Chalcolithic in Bulgaria) is an ongoing process (Boyadzhiev *et al.* 2011).
- 25 Nikolov 2011, 19.
- 26 Chapman 2000a, 85; Schwarzberg 2003, 80.
- 27 Schwarzberg 2005b.
- 28 Terzijska-Ignatova 2010.
- 29 Terzijska-Ignatova 2004.
- 30 Terzijska-Ignatova 2004.
- 31 Klasnakov 2008, 8.
- 32 Nikolov 2002, 324; Nikolov 2006, 126.
- 33 Nikolov 2007.
- 34 Klasnakov 2008, 10.
- 35 Todorova and Vaysov 1993, 217.
- 36 Sanev 1988, 19–22; Lazarovici 2003, 85.
- 37 Bonev and Aleksandrov 1996, 7, 20.
- 38 Matsanova and Mishina this volume.

Rethinking the absolute chronology of the South-Eastern Balkans in the latter half of the 5th and in the 4th millennium BC

Mariusz Kufel and Łukasz Pospieszny¹

Introduction

Some of the most poorly understood issues in the archaeology of the South-East Balkans are the societies, cultures, economies, settlements and ideologies of the communities inhabiting the region at the end of the 5th and in the 4th millennium BC. The main reason for this can be sought in the lack of data from both settlement and funerary contexts of this period, in comparison to the beginning of 5th and the 3rd millennium BC. This disparity presumably reflects strong transformations in all domains of life of the prehistoric Balkan communities.

Currently there are three dominant fundamental approaches that systematise the periodisation, chronological, taxonomic and socio-cultural issues in South-East Balkan archaeology. The first approach refers to a “Transitional period” that is considered a real stage in prehistory, placed after the decline of the cultural complexes of the Late Copper Age (Kodzhadermen-Gumelnița-Karanovo VI, Krivodol-Sălcuța-Bubanj Hum, and Varna culture) and before the appearance of the characteristics of the Early Bronze Age cultures (e.g. Ezero A, Cernavoda III, Orlea-Sadovets,

Yunatsite, Magura-Coțofeni). This period covers generally the entire 4th millennium BC. From the perspective of stratigraphic order, it has been marked out by the last burnt horizons (Eneolithic) in several tell sites in Thrace, followed by a hiatus in habitation lasting many centuries.² The second approach postulates two epochs: Final Copper (I–II) and Early Bronze Age (phase I).³ The third proposal is derived from research on the comparative chronological issues arising from the exploration of several tell sites in Central-East Macedonia, such as Sitagroi, Dikili Tas, Mandalo and Ayios Ioannis.⁴

An increase in the quantity of ¹⁴C dates obtained in the last three decades of the 20th century has also allowed scholars to tackle the issues surrounding the absolute chronology in respect to individual horizons on both multilayer and flat sites, as well as cultures and phases across the South-East Balkans.⁵ Moreover, this has enabled researchers to synchronise and provide a more accurate absolute chronology for selected cultures and cultural units in the local and regional dimension.⁶ In relation to the aforementioned Transitional period, on the basis of radiocarbon dating, it has been argued that this period was not one cultural event nor did it involve synchronous processes in different regions. The duration of this Transitional period depended on the regional conditions:⁷ e.g. in Thrace and in the coastal zone of the Black Sea it lasted longer (from ca. 4100 to 3200 BC), but was substantially shorter in the western provinces of the South-East Balkan area (from ca. 3900 to 3400/3300 BC).⁸ In Central-East Macedonia the period covering the end of the 5th and the entire 4th millennium BC was assigned to the transition from the Neolithic to the Bronze Age as well as to the regional hiatus in settlement, the duration of which is supposed from about 4600 to 3200/3100 BC.⁹

It is felt, however, that previous studies have given considerably less priority to the absolute dating of the mentioned settlement discontinuation, which was observed in the settlement mounds of the South Balkans as early as the 1970s both in

comparative-stratigraphical as well as typo-chronological analyses.¹⁰ Regarding spatial extent, key traits or the causative factors of the Transitional period have been identified for some regions,¹¹ but less attention has been paid to the absolute dating of this discontinuity in various regions of the South-East Balkans.

Purpose

In this paper, we seek to identify and calculate the time span of settlement discontinuity, approaching the issue from the global (South-East Balkans) and regional view. The absolute chronology of the mentioned hiatus was ascertained by modelling ^{14}C dates as well as by re-evaluating the dating of selected ceramic categories and stylistic characteristics: graphite-painted pottery, black on red pottery, channelled pottery and corded pottery.

Our study has two fundamental assumptions. The first assumes that the ^{14}C estimations reflect real settlement situations (continuity or discontinuity), and the second posits that ceramic styles are representative of settlement activity on a site, micro-region or even over a defined area.

Applied methods and modelling process

With the aim of resolving the question concerning the existence or absence of a settlement hiatus, a total of 302 published ^{14}C dates have been collected for modelling, in 26 cases of which it was necessary to resolve some uncertainties or ambiguities and to complete missing details such as laboratory numbers, BP values and (or) standard deviations.¹² Then, a whole set of dates was arranged into four groups according to the relative chronological stages of the traditional periodisation system, mostly approved in Balkan archaeology.¹³ In our analysis we have used all the ^{14}C dates (regardless of the values of standard deviations) that, based on the comparative-stratigraphical as well as local and regional synchronisations, refer to the previously mentioned epochs. In the next analytical stage the same set of ^{14}C dates was ordered into

eight groups according to the eight regions into which the area of study has been divided (Fig. 14.1).¹⁴ And finally, the last stage of processing the dates involves grouping them according to four stylistic categories in pottery.¹⁵

As a proper stage of modelling, the ^{14}C dates were subjected to calibration with the program CALIB 6.1.0¹⁶ using the curve IntCal09¹⁷ and the probability distributions were summed at the 2σ confidence level (95.4%). The summing was carried out for all dates, and separately by groups representing the four stages mentioned above (settlement horizons), the eight individual regions and the four stylistic categories in pottery.

Results

Modelling of all ^{14}C dates shows two distinctive time ranges (5050–3620¹⁸ and 3370–2270 BC) (Fig. 14.2) separated by a gap of about 250 years (observable around 3600 and 3350 BC respectively).

Regarding the correspondence of groups to chronological stages, the first group (I) is dated to 5300–3700 BC; the second (II) to approximately 4450–2850 BC; the third (III) to 3800–2300 BC; and the fourth (IV) to 3400–2150 BC (Fig. 14.3).

Calculations of ^{14}C dates for each region demonstrate an uneven distribution of ranges and distinct gaps (Fig. 14.4). In the first zone, the summed probability distributions of dates tend to concentrate in two areas: 4450–3520 BC and 3100–2290 BC with a break in between around 3520–3100 BC. The results obtained for the second zone show ranges from 4850–3630 BC with a presumable gap from 4200–3800 BC. The group of values representing the third zone shows two spans separated by an interruption around 3950–3100 BC. In the case of the series of dates representing the fourth zone there is no certainty as to the length of the span covered. The first period distinctively marked lies between 5320 and 4250 BC, whereas the second, characterised by a minute percent of probability can be placed in the span

3800–3700 BC. The values of the fifth zone extend over the period 4450–2030 BC, and a more extended range is observable in the 3rd millennium BC, which can be interpreted as the most probable dating of settlement horizons in this zone. To a lesser extent, this is visible in the case of date groups around 4450–4320 BC. Much more distinctive are ranges representing the sixth zone. Their interval falls between 4790 and 2140 BC, in which a long gap is discernible around 4230–3380 BC. Ranges for the seventh zone comprise two time stages that end at 3360 BC. And the largest range of probability, representing the eighth zone, covers the period 5380–2110 BC without major interruption.

Regarding the absolute dating of ceramic styles, the values for the black on red category indicate a continuous period from 5200 to 3650 BC. We observe almost the same situation with respect to the graphite-painted pottery (4950–3800 BC). The two further categories show ranges between 4250 and 2500 BC (channelled pottery) and 4000 and 2450 BC (corded pottery). In both cases a gap of 250 years is visible which can be placed from 3620 to 3350 BC (Fig. 14.3).

Interpretation and conclusions

The obtained results lead to several preliminary conclusions about the settlement hiatus that in this case is reflected by a break in summed probability ranges of ^{14}C dates in relation to the entire series, as well as to the selected stylistic categories in pottery.

If we consider the hiatus in global terms, *i.e.* by taking into account all calibrated radiocarbon dates and exactly expressed initial assumptions, the aforementioned interval of 250 years can be interpreted as an indication of an actual hiatus in occupation of the South-East Balkans in the 4th millennium BC.¹⁹ However, this problem is much more profoundly rooted, because as the analysis shows, it does not refer to the entire area in question. Calibrated ^{14}C dates from the sites located in different parts of this area such as Ayios Ioannis on Thasos, Dubene-Sarovka and Yunatsite in

Thrace and Ovcharovo-Plato in the northern regions of the South-East Balkans can be attributed to this time span. This fact may imply a continuity in occupation which can presumably be inferred from overlapping time ranges of the chronological stages. The situation is particularly clearly expressed in respect to stages III and IV, where one can observe a state in which the summed probability range belonging to stage III is entirely included in that of stage IV. This may result from a substantial elongation of particular summed probability ranges achieved in this analysis by comparison with the chronological framework of epochs generally acknowledged in the archaeology of the South-East Balkans.²⁰ It seems likely, however, that the ranges are not substantially stretched out. Statistical analysis (whereby ¹⁴C dates that deviate from the expected normal distribution of the summed probability range for an entire series are statistically insignificant), makes the durations of the periods evaluated in our analysis quite likely.

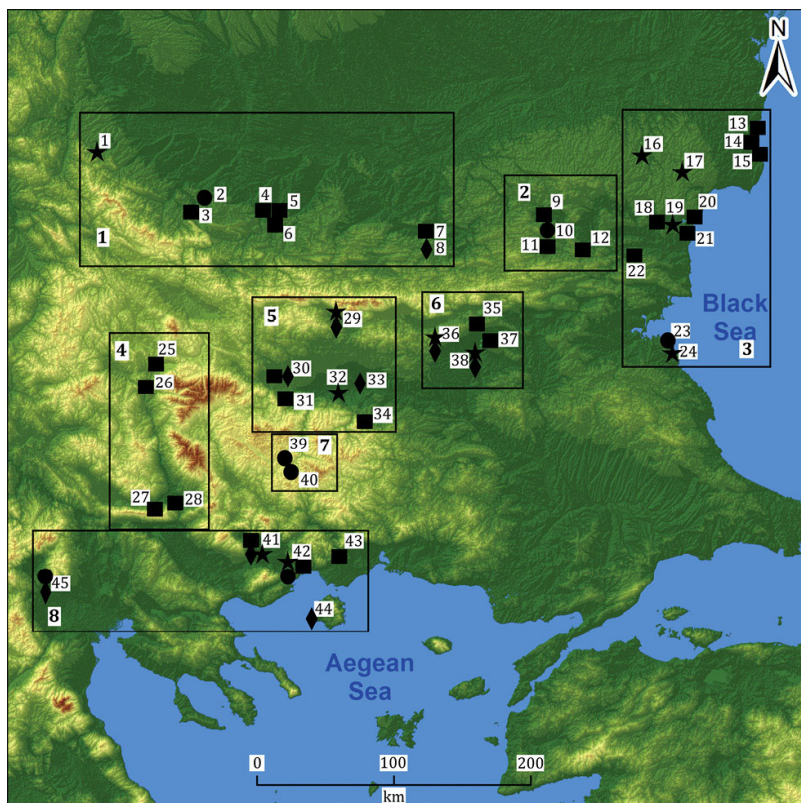


Figure 14.1. Study area divided into regional zones with the locations from which the ^{14}C dates used in the analysis derive: square: 1st group; circle: 2nd group; diamond: 3rd group; and star: 4th group.

A manifestation of continuity can also be inferred from the calculated ranges for the stylistic categories described above. According to the dating, the rather long-lasting domination of black on red pottery (exclusively in Central-East Macedonia) and graphite-painted pottery ended between 3700 and 3600 BC.²¹ In terms of the two other categories (channelled and corded pottery) attention should be focused on the break from 3620 until 3350 BC. There are at least two ways of interpreting this break. The first, which in our view is the less reliable, assumes that this gap reflects a relatively short cessation of making these styles (ornamentation), since a long tradition characterises both

categories that extended far beyond 2500 BC. More likely, this interruption is misleading and follows rather as a consequence of a lack of representative ^{14}C dates of that period.

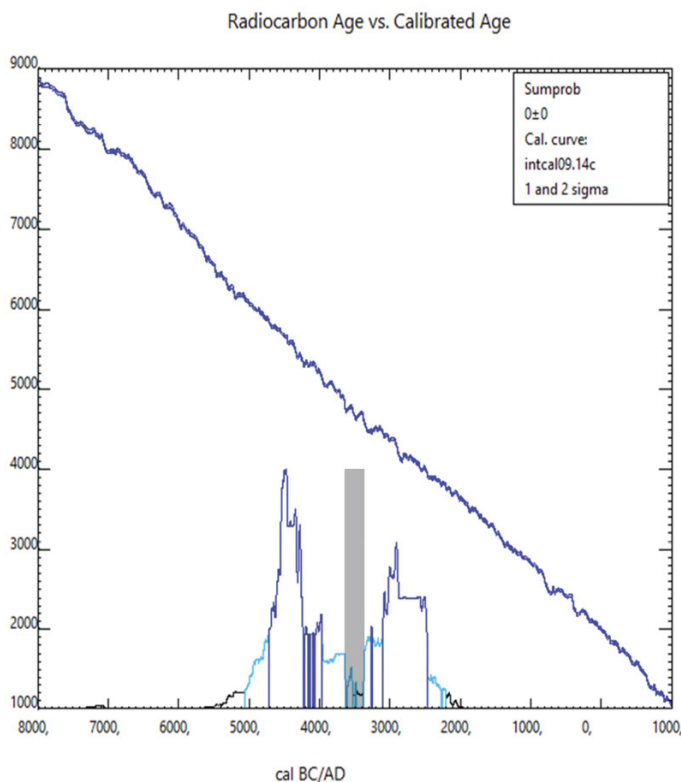


Figure 14.2. Results of summed probability distribution of 302 ^{14}C dates with 1σ and 2σ confidence level. The interval of 250 years is marked with the grey bar.

The discontinuity seems more evident if one considers the problem in respect to geographical regions (zones). The summed probability distribution for all zones except Central-East Macedonia may suggest an asynchronous discontinuity: in the western region of Upper Thrace of 1300 years (4300–3000 BC), in the Eastern part of Upper Thrace and in the Western Black Sea area presumably of 800–750 years. In the first case there is

possibly a hiatus from 4200 until 3400 BC, and in the second probably in the period between 3950 and 3100 BC. In Central-East Macedonia, the given ranges may be the sign of continuity. In other regions, the gap is not so evident.

In conclusion, we should emphasise that results obtained in this paper suggesting a hiatus depend mostly on initial assumptions and presupposed methods of calculating the ^{14}C dates. The fact is that there are much fewer ^{14}C dates for the 4th millennium BC than for the 5th and 3rd millennium BC. This can be interpreted as an indication of reduced settlement activity, and even a decrease in population inhabiting the South-East Balkans at that time. The regional analysis also shows that the said gap, which expresses a settlement situation, was located asynchronously in individual zones. One can explain this as a sign of a diachronic process of reduced community activity in each region. In light of the statistical analysis described above, we can conclude that there is little evidence to suggest any synchronous events of discontinuity in occupation encompassing the entire South-East Balkans in the 4th millennium BC.

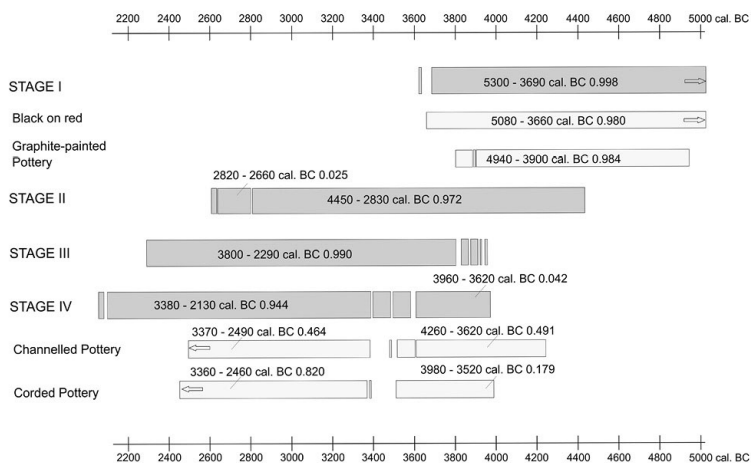


Figure 14.3. Summed probability distributions of ^{14}C dates representing stylistic categories in pottery and stages of the traditional periodisation

system of the South-East Balkans (probability ranges indicated).

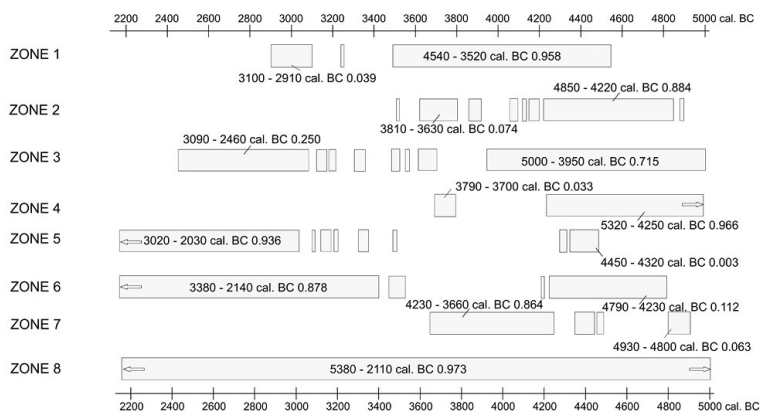


Figure 14.4. Summed probability distributions of ^{14}C dates representing individual regions of the South-East Balkans (probability ranges indicated).

Notes

1 We wish to express our sincere gratitude to the organisers of the conference Communities in Transition, who kindly allowed us to present and publish the results of our analysis. Most sincerely we would like to thank Prof. M. Filipova-Marinova and Dr Z. Tsirtsoni for materials that enabled the correction of errors in published ^{14}C dates. We are also grateful to Prof. J. Czebreszuk for valuable comments on many issues addressed in this article. Thanks are due also to J. Niebieszczański for his help in the production of [Fig. 14.1](#). And last but not least one of the authors wishes to thank Prof. D. Gergova, Dr M. Pappa, and particularly Professors S. Andreou and K. Kotsakis for their guidance and support during his stay in Thessaloniki and Sofia while undertaking research for his Ph.D., some aspects of which are included in this paper.

2 e.g. Parzinger 1993; Todorova 1979; Todorova 1986, 226; Todorova 1995; Todorova 2003; cf. also recent papers: Ivanova 2008; Merkyte 2007.

3 e.g. Nikolova 1999; Nikolova 2008.

4 e.g. Aslanis 1992; Aslanis 2002; Elster and Renfrew (eds) 2003; Kotsakis *et al.* 1989; Maniatis and Papadopoulos 2011; Maniatis *et*

al. 2014; Papadopoulos 2002; Renfrew *et al.* (eds) 1986; Treuil 1992c; Treuil (ed.) 2004.

5 *e.g.* Boyadzhiev 1992b, 402–5, Katalog der C-14-Daten; Boyadzhiev 1995, 183–7, tab. 5; Boyadzhiev 1998, 350–1, fig. 1, 361–6; Boyadzhiev 2002, 67–9; Boyadzhiev 2007, 314–16; Bozilova and Beug 1994, 148, tabs 3–4; Breunig 1987; Darcque *et al.* 2011, fig. 13; Filipova-Marinova *et al.* 2011, 234, tab. 19.1; Görsdorf and Boyadzhiev 1996; Hellström 1987, 135; Higham *et al.* 2008, tabs 2–3; Ivanova 2008a, 187–8; Johnson 1999, 322–4; Kotsakis *et al.* 1989, 682; Koukouli-Chrysanthaki *et al.* 2007, 50, fig. 6; Koukouli-Chrysanthaki *et al.* 2000, 93; Maniatis and Kromer 1990; Maniatis and Papadopoulos 2011, 27, tab. 1; Merkyte 2005, 33–6, fig. II.12; Nikolova 1999, 397–406, tab. A; Nikolova and Görsdorf 2002, 534–6, tabs 1–2; Panayotov 1989a; Preisinger *et al.* 2000–1 (2004) 13, tab. 4a; Rassamakin 1999, 157–74, app. 3.1; Séfériadès 1983, 640, fig. 4; Todorova 1983: 26, fig. 11; Treuil 1992c, 33; Weninger 1995, 446, tab. 1.

6 *e.g.* Görsdorf and Boyadzhiev 1996; Boyadzhiev 1998; Boyadzhiev 2007; Nikolova 1999; Nikolova 2008.

7 *e.g.* Boyadzhiev 1992b; Vaysov 1992.

8 Boyadzhiev 1998: 350–1, fig. 1.

9 *e.g.* Andreou *et al.* 1996; Papadopoulos 2002.

10 *e.g.* Nikolova 1999; Todorova 2003 and references therein.

11 In earlier studies, some scholars equated a settlement hiatus with a Transitional period *cf.* *e.g.* Todorova 1995; Todorova 2003.

12 For the sources from which the dates used in this analysis originated, *cf.* above note 5. The problematic dates are as follows: Arsenala (Hv-11489 5390 ± 65); Bikovo (Bln-337 5590 ± 100); Durankulak-Nivata (Hv-13433 5645 ± 80); Ezero (Bln-1786 4450 ± 80 ; Bln-1838 4305 ± 60 ; Bln-423 4440 ± 80); Haramijska Dupka (Bln-3341 5250 ± 60 ; Bln-3344 5030 ± 50); Kolarovo (Bln-2675 4040 ± 50); Magura (Bln-1575 5015 ± 50 ; Bln-1574 5085 ± 60); Mandalo (HD-9834 5340 ± 100 ; HD-9833 5460 ± 50 ; HD-9596 5290 ± 70 ; HD-9563 5430 ± 70 ; HD-9602 5460 ± 100 ; HD-9216 4130 ± 70 ; HD-9915 4130 ± 40 ; HD-9146 3860 ± 70); Ovčarovo-Plato (Bln-1547 5025 ± 60 ; Bln-1510 4910 ± 60); Plachidol (Bln-2504 4380 ± 60); Poveljanovo (Bln-1141 5595 ± 100 ; Bln-1140 5520 ± 100); Sozopol (VERA-1281 5300 ± 45 ; VERA-1652

5310 ± 40).

13 *First group* (a total of 130 dates) includes ^{14}C estimations from sites and settlement horizons representing Copper Age/Eneolithic/Chalcolithic (according to the system used for the South-East Balkan area) and first half of the Final/Late Neolithic or Chalcolithic in the system for the North Aegean region; *second group* includes a total of 34 dates relating to the Final Copper Age/post-Eneolithic/first phase of Transitional period (in Balkan system of periodisation) and Final Neolithic in North Aegean periodisation (the first two centuries of the 4th millennium BC); *third group* consists of a total of 54 dates that correspond to the first stage of Early Bronze Age/Proto-Bronze Age/second phase of the Transitional period (in the system for South-East Balkan region) and the second half of Final Neolithic in the system suggested for the North Aegean region (second half of the 4th millennium BC); *fourth group* comprises a total of 84 dates linked to the first or second stage of the Early Bronze Age.

14 To better determine the chronological limits of the postulated settlement discontinuity in individual regions, the study area is divided in the following way (by each zone there are given sites from which the ^{14}C dates originated, preceded by information placed in brackets about the total number of dates used in modelling): 1. *NW zone* (29 dates) – Magura, Čukata-Galatin, Krivodol, Pipra, Telish-Liga, Telish-Redutite, Hotnitsa and Hotnitsa-Vodopada (sites 1–8); 2. *NE zone* (28 dates in total) – Ovcharovo, Ovcharovo-Plato, Omurtag and Smyadovo (sites 9–12); 3. *Western Black Sea area* (56 dates) – Durankulak cemetery, Durankulak-Nivata, Durankulak-Great Island, Poruchik Geshanovo, Plachidol cemetery, Poveľyanovo, Ezerovo, Varna cemetery, Arsenala, Golyamo Delchevo, Sozopol and Kiten-Urdovitsa (sites 13–24); 4. *SW zone* (17 dates) – Dyakovo, Slatino, Kolarovo and Topolnitsa (sites 25–28); 5. *Upper Thrace (western portion)* (31 dates) – Dubene-Sarovka, Yunatsite, Banyata Mogila, Plovdiv-Nebet Tepe, Manole-Rozkopanitsa and Dolnoslav (sites 29–34); 6. *Upper Thrace (eastern portion)* (68 dates) – Azmak, Ezero, Bikovo and Dyadovo (sites 35–38); 7. *the Rhodopes* (12 dates) – Haramijska Dupka and Yagodina caves (sites 39–40); and 8. *Central-East Macedonia* (61 dates) – Sitagroi, Dikili Tas, Paradeisos, Ayios Ioannis and Mandalo (sites

41–45).

15 Every category is followed by the information on the total amount of dates in brackets and a list of sites from where the dates originated: Black on Red pottery (13 dates) - Dikili Tas, Paradeisos and Sitagroi; Graphite-painted pottery (67 dates) – Azmak, Bikovo, Dikili Tas, Dyakovo, Dolnoslav, Golyamo Delchevo, Yagodina, Krivodol, Liga, Ovcharovo, Paradeisos, Sitagroi, Smyadovo and Sozopol; Channelled pottery (30 dates) – Dubene-Sarovka, Hotnitsa-Vodopada, Yunatsite, Liga, Ovcharovo-Plato and Sitagroi; and Corded pottery (44 dates) – Dikili Tas, Ezero, Hotnitsa-Vodopada and Kiten-Urdovitsa.

16 Stuiver and Reimer 1993.

17 Reimer *et al.* 2009.

18 All chronological ranges mentioned in the text are rounded to ten.

19 The problem of precise absolute dating for events in the 4th millennium has been repeatedly pointed out in the literature: *cf. e.g.* Boyadzhiev 1992b; Boyadzhiev 1995; Boyadzhiev 1998.

20 *e.g.* Boyadzhiev 1995; Boyadzhiev 1998; Andreou *et al.* 1996; Todorova 2003.

21 The disappearance of these ceramic features was previously dated *ca.* 200 years earlier *i.e.* *ca.* 3900–3800 BC (*e.g.* Boyadzhiev 1998).

Graphite and carbon: Relative and absolute chronology between the Aegean and the Black Sea in the 5th millennium BC

Agathe Reingruber¹

Introduction

Graphite, one of the softest minerals, is an allotrope of carbon in its most stable form, chemically resistant and difficult to be ignited; it requires high temperatures to react even with oxygen.² Since it was used until the end of the 19th century in pencils, it received its name from the ancient Greek word for drawing and/or writing: γράφω. Carbon, on the other hand, is present as a powder and is the main constituent of substances such as charcoal. It occurs with three natural isotopes, one of them being unstable and radioactive. This last, ^{14}C , is a naturally occurring radioisotope mostly confined to the atmosphere and superficial deposits; it is virtually absent in ancient rocks.

Graphite has been used since the 5th millennium BC for ornamental purposes on vessels and/or specific parts of vessels. Such decorations are typical for certain regions at certain times, enabling archaeologists to create relative chronologies. The radioactive isotope ^{14}C , on the other hand, can be used for absolute dating after calibration and hence be connected to calendar years.³

It is about time to join the information regarding both graphite painting and radiocarbon results to create a more comprehensive chronological scheme valid not only for a specific site but also for a larger region. Two vast cultural complexes: Kodžadermen-Gumelnița-Karanovo VI (K GK VI) and Sălcuța-Krivodol-Bubanj Hum (SKBh) were primarily defined according to pottery styles. In both complexes graphite paint occurred together with the use of metals during the 5th millennium BC. At first sight the differences between the complexes seem small. In detail, though, some notable distinctions are obvious, especially regarding the ornaments on vessels.

Graphite painting in the Balkan Peninsula

Graphite occurs as a mineral throughout the Balkan Peninsula, both in the Balkan mountain range and in the Rhodope mountains (Fig. 15.1, A–O). The graphite was rubbed into a fine powder, enriched with calcareous matter and then pressed into conical bars that were pierced for easier transportation (photo in Fig. 15.1). By rubbing the blunt end of the bar on a hard flat surface the graphite was regained (together with the chalk included in the bar). This was mixed into a paste that was probably applied with a brush. Such bars, used to exhaustion, have been identified at most West Pontic sites (Fig. 15.1.1–18), indicating that not the painted vessels but the raw material was traded from essentially the same areas as was copper.

If the vessel was thereafter fired in an oxidising atmosphere, the graphite could chemically react with the oxygen at temperatures as low as around 600–700°C resulting in CO₂, thus endangering the painting. In a reducing atmosphere, this problem did not occur, and the end product was a dark background with a silvery shimmering graphite design. Yet the potters succeeded in both techniques. In order to obtain brownish surfaces with a silvery graphite pattern, the pots were probably fired in two steps: first at high temperatures above 700°C and then, after the

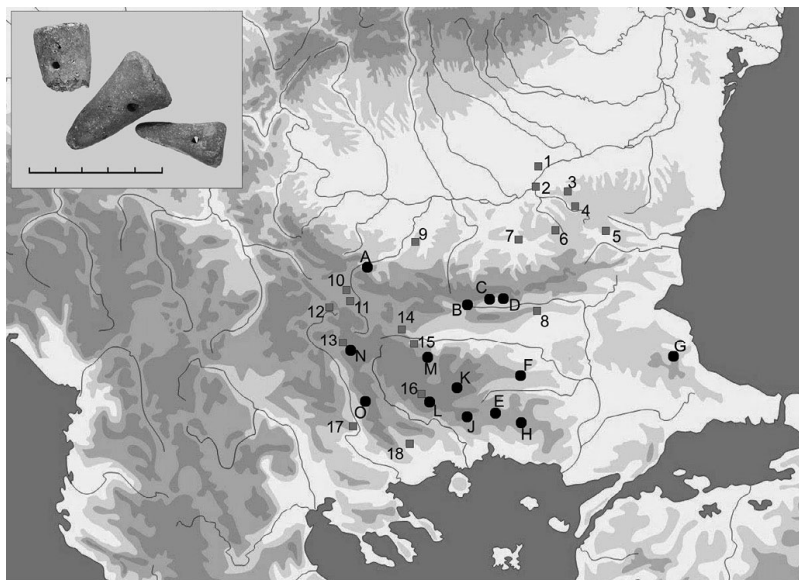
application of the graphite, for a short while at lower temperatures. Nevertheless, it is possible that graphite painted vessels were fired in a single step as well.⁴

Not only do the sophisticated patterns speak to an artistically high level of production, but also indicate that knowledge regarding chemical processes seems to have been widespread. Where exactly this painting technique appeared first is difficult to assess. One often reads that in the Late Neolithic (LN) whole vessels were covered with graphite,⁵ but such examples have never been illustrated. The possibility has been raised that only a band below the rim of the pot may have been “graphitised”.⁶ This treatment appeared between 5500 and 5000 cal. BC, before the conception of very precise and sophisticated ornaments after 5000 BC. The characteristics and advantages of graphite were therefore already known before 5000 cal. BC – a fact that is supported by observations made recently by J. Pechtl and F. Eibl:⁷ in the oldest phase of the LBK, pots with graphite surfaces were produced in Bavaria⁸ but disappear in the younger LBK.

No such precursors are known from the Lower Danube region: there the white and red encrusted vessels with vegetable temper, characteristic of the LN, were quickly substituted by graphite paint and mineral temper. Yet, in the Strymon valley and near the Aegean coast many different substances (*e.g.* bitumen, manganese-based colours and earthen brown colours) as well as different techniques (*e.g.* black-topped) have been tested and applied – always on well levigated pastes with mineral temper. The great proliferation of painted wares, like *e.g.* in Sitagroi II (5000–4600 cal. BC) is explained by technical innovations that are based on a better control of oxidation.⁹ It might not be a coincidence that both the mineral graphite and graphite bars appear in this region, whereas they had to be imported to the territory of the Gumelnița culture.

We can therefore assume that graphite was used decades if not centuries earlier in the Central Balkans than in the Eastern

Balkans.



A- Ignatitsa; B- Kalofer; C- Shipka; D- Seltse; E- Sveti Ilja; F- Shishmanovo; G- Gramatikovo;
H- Golyamo Kamenyane; J- Madan; K- Chepelare; L- Yagodina; M- Krichim; N- Bistritsa; O- Lebnitsa.

1- Pietrele; 2- Ruse; 3- Kubrat; 4- Radingrad; 5- Kodzadermen; 6- Sultan (Popovo); 7- Hotnitsa;
8- Karanovo; 9- Telish-Laga; 10- Kurilo; 11- Okol glava; 12- Pernik-Krepostta; 13- Sapareva banja;
14- Yunatsite; 15- Mechkyur; 16- Yagodina-Höhle; 17- Topolnica-Promachon; 18- Sitagroi.

Figure 15.1. A–O: graphite sources and 1–18: graphite bars (modified after P. Leshtakov et al. 2007, map 1–2; photo: Hansen 2007, fig. 37).

The geographical setting

An interesting geographical aspect is the localisation of Chalcolithic sites either west or east of the watershed that separates rivers flowing into the Black Sea from those flowing into the Aegean (Fig. 15.2):

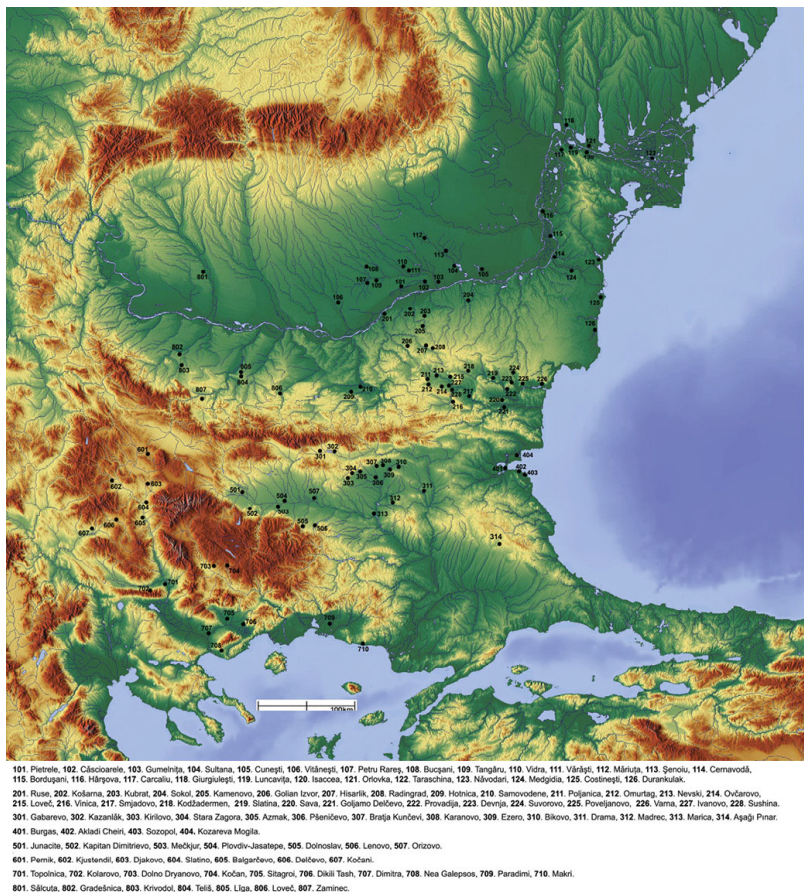


Figure 15.2. Map of the West Pontic and Northern Aegean region with some of the most important tell sites of the 5th millennium BC.

1. In the Lower Danube region, sites are arranged in a triangle around the Ludgorie Plateau. They are concentrated in the south near the rivers Kamčija and Provadia, around the lake of Varna and near Burgas Bay. In the north, some of the largest tells are situated on the left bank of the Danube valley, or rather on the northern shore of the reconstructed palaeo-lake that covered most of today's plain.¹⁰
2. West of the watershed, the Thracian sites are located mainly south of the Upper Tundža in hilly areas in the Sredna Gora or

the Branica between the rivers Marica and Tundža; sites near the upper reaches of the rivers Marica/Evros/Meriç, Struma/Strymon and Mesta/Nestos are all situated around the Rhodope Mountains.

Apart from a few rivulets, no rivers empty into the Sea of Marmara; the Ergene drains most of the Turkish-Thracian plain into the Meriç/Marica river. This basin-like area was not only intriguingly empty during the Chalcolithic, but it also appears almost uninhabited in the Neolithic. Interestingly, the few sites in this region with the largest river confluences and in the direct vicinity of the three seas (esp. Turkish Thrace¹¹) were the first to be abandoned at the end of Karanovo IV, the latest around 4800 cal. BC as attested by the ¹⁴C sequence from Aşağı Pınar.¹² The lack of sites during prehistory cannot be explained merely by the silting up of river plains with alluvial deposits, nor do insufficient research and lack of excavation programmes caused by political circumstances or border problems between modern countries serve as profound explanations. A thorough study regarding the absence of sites in this area would require a combination of archaeological and extensive geomorphologic research.

According to geographical conditions, the vast area between the Lower Danube and the Northern Aegean Sea will be subdivided into several regions, comprising from north to south:¹³

1. The Lower Danube region with its northern and southern tributaries east of the line formed by the rivers Vedeia and Yantra; it is the area of the Gumelnița culture for which the site of Pietrele serves as a backbone regarding both relative and absolute chronology;
2. The rivers Kamčija and Provadia discharging into the Black Sea: whereas the upper part of the mentioned rivers is the area of the Kodžadermen culture, the coastal area can be attributed to the Varna culture with the eponymous graveyard as the most prominent representative;

3. The southern fringes of the Balkans and the Upper Tundža river are the area of the Karanovo VI culture with a good sequence of radiocarbon dates deriving from Tell Azmak;
4. An area that came under closer investigation only recently is the Black Sea coast around the bay of Burgas (the finds from here will not form part of the analyses since the information on relative and absolute chronology is still too scant).
5. The area of the Karanovo VI culture also includes the long and narrow strip between the Rhodope mountains and the Marica river, with Junacite at its westernmost edge;
6. The Strymon/Struma valley separates the Rhodope massive from the Rila and Pirin mountains; in its upper part the Slatino culture merges at the height of the site of Promachon-Topolnica with...
7. ...the coastal area between the rivers Strymon and Nestos, where Sitagroi and Dikili Tash are situated;
8. The Lower Danube area west of the line formed by the rivers Olt and Osam is occupied by the cultures Sălcuța/Krivodol/Bubanj Hum – in this contribution this region will be treated only marginally (also, only few such sites are shown on [Fig. 15.2](#)).

The Lower Danube

The tell sites in region 1 are among the youngest in the whole West Pontic area, none predating the 5th millennium BC. As discussed elsewhere, these tells, measuring 9–10 m high, are among the highest Chalcolithic tells in the Eastern Balkans.¹⁴ Outstanding among them is the site of Pietrele for the amount of available information. As has been shown by a team of geographers from the University of Frankfurt, the site lay on the shore of a vast lake.¹⁵ This palaeo-lake connected the settlements between Pietrele in the west and at least Gumelnița if not as far as Cunești in the east, a minimum distance of 60 km.

The complex site of Pietrele consists of the tell itself (called

Măgura Gorgana) and the flat settlement around it. Of the *ca.* 10 m height, 7.20 m have been excavated until 2013 in trench F, consisting of the remains of seven burnt or unburnt houses lying one on top of the other. Fifteen radiocarbon dates from this trench alone are arranged in [Fig. 15.3](#) according to their stratigraphical position showing their calibrated values. Single outliers or those dates that reflect a long duration (attributable to the flat portion on the calibration curve at the end of the 5th millennium¹⁶) certainly need a better interpretation. This is possible using the statistical approach based on Bayesian modelling: relying on the arrangement according to the six house phases with available ¹⁴C dates, the probable duration of each phase can be calculated and outliers straightened out ([Fig. 15.4](#)).¹⁷ The oldest dates place house phase 6 around 4540–4480 BC, the samples from the level under it are expected to date around 4600–4540 cal. BC. The pottery from this older house phase marks the transition from the Neolithic to the Chalcolithic, vessels of the Neolithic period being tempered with vegetable matter in contrast to the Chalcolithic pottery that is exclusively mineral tempered. It seems therefore secure to date the Gumelnița culture in Pietrele between 4600 cal. BC and 4250 cal. BC.

Both wiggle-matching and Bayesian statistical approaches confirm the duration of single house phases in Pietrele between 30 and 70 years.¹⁸ We can therefore now speak in terms of decades when considering the sequences in Chalcolithic tells rather than in a very rough and general way in terms of centuries.

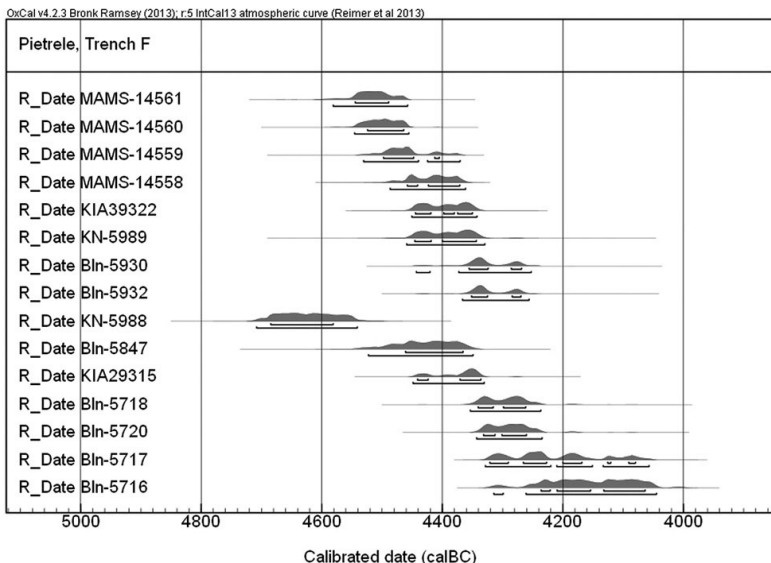


Figure 15.3. Radiocarbon dates from Pietrele, Trench F, arranged according to their stratigraphical position.

Graphite painting in Pietrele

Graphite was in use in Pietrele since at least 4600 cal. BC, presumably even earlier. After 4600 cal. BC, it was applied mainly to the inner surfaces of large open mineral tempered bowls and cups, but also on the outer surfaces of big lids and the shoulders and necks of closed vessels. In the lowest level so far, graphite appears as additional paint to already existing red and white ornaments.¹⁹ When the entire ornamentation was executed in graphite, broad lines were rendered either in the positive or in the negative (Fig. 15.5.5). Such lines prevail also in the next levels when they simply outline the main motifs. In house phase 2, lines become thinner and ornaments more complex. In house phase 1, very thin, intersecting lines dominate, leaving enough space for zonal patterns in the spandrels that frame the main negative motif (Fig. 15.5.1–4).

The inner division of large open bowls or cups is either in halves or in quarters (the latter called “swastika” by Todorova²⁰).

The motifs therein are repeated in a certain manner, either in one or in two pairs of two identical ornaments (Fig. 15.5). Only in the upper levels are the segments further separated into horizontal registers – this being achieved by the application of very thin and exact lines resulting in sophisticated designs. Usually the main motifs are rendered in the negative, the polished surface of the vessel having been reserved in the shape of drop-like or wavy motifs.²¹

Wave-like ornaments were also incised; this motif is famous in Precucuteni²² and Hamangia IV pottery²³ of the first half of the 5th millennium. More numerous though are the incised helices, a motif that consists of two interlocking spirals.²⁴ In Pietrele the broad bands are bordered by deep lines filled with white encrusted paste. The spandrels of the curvilinear motifs are also roughened around a polished circle (Fig. 15.6.1). In the upper layers the circle is substituted by a drop-like motif (Fig. 15.6.2). Interestingly, helices in Pietrele are never shown in graphite.²⁵ This clear-cut rule is a feature that distinguishes the pottery of the Lower Danube area from the regions south and west of it, where the main motif is the helix executed in graphite.

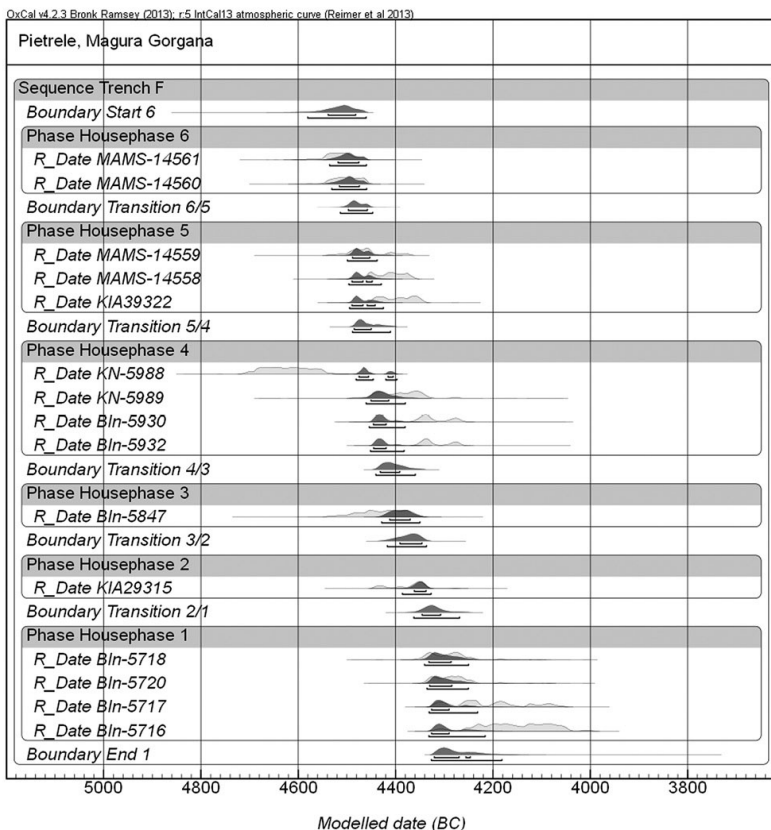


Figure 15.4. Radiocarbon dates from Pietrele, Trench F, modelled according to Bayesian statistics.

Radiocarbon dated sites north of the Balkans with graphite painted pottery

Graphite painting at Varna occurs only on a few small vessels (cups) but not on large bowls.²⁶ On the other hand a large open bowl from Grave 4 was painted with gold dust. The decoration resembles the bowl from Pietrele with broad lines and “breaking waves”, but additionally it displays a netlike pattern of lozenges.²⁷ No ^{14}C dates are available from Grave 4; in comparison to painted bowls from Pietrele it could be dated to around 4400 cal. BC. The published dates from Varna are predominantly derived from

human bones (Fig. 15.7) – yet a reservoir effect has been excluded.²⁸ When comparing the dates from human bone with those from animal bones there seems not to be a significant difference: human bones date between 4800–4340 cal. BC, animal bone between 4700–4340 cal. BC. But when analysing the pairs of dates from the same grave consisting of one human and one animal bone, differences become obvious: in Grave 111 the date for the human bone (OxA-13865) is up to 200 years older than that for the animal bone, in Grave 117 the difference is up to 360 years. Most probably the graveyard was in use not before 4600 BC and not after 4300 BC.



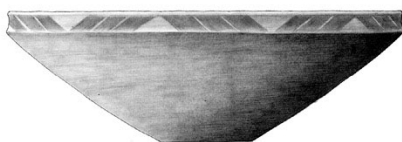
1. P07B362CER05 (dm=44 cm; c. 4250 BC)



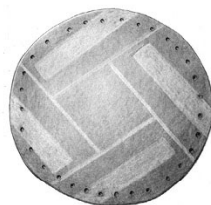
2. P06B230CER01 (dm=11,4 cm, c. 4340 BC)



3. P07F409 (dm=11,2 cm, c. 4400 BC)



4. P09B739CER06 (dm=44 cm, c. 4460 BC)



5. P12B286 (dm=14 cm, c. 4500 BC)

Figure 15.5. Pietrele, main motifs painted with graphite on bowls and lids: 1–2, 4: simple or breaking waves and drops; 2–3: net-like motifs; 4: waves and drops; 5: simple rods (drawings by 1: Waltraut Rust; 2: Cristina Georgescu; 3: Heide Wrobel-Nørgaard; 4: Irma Berdženishvili; 5: Tilmann Vachta).

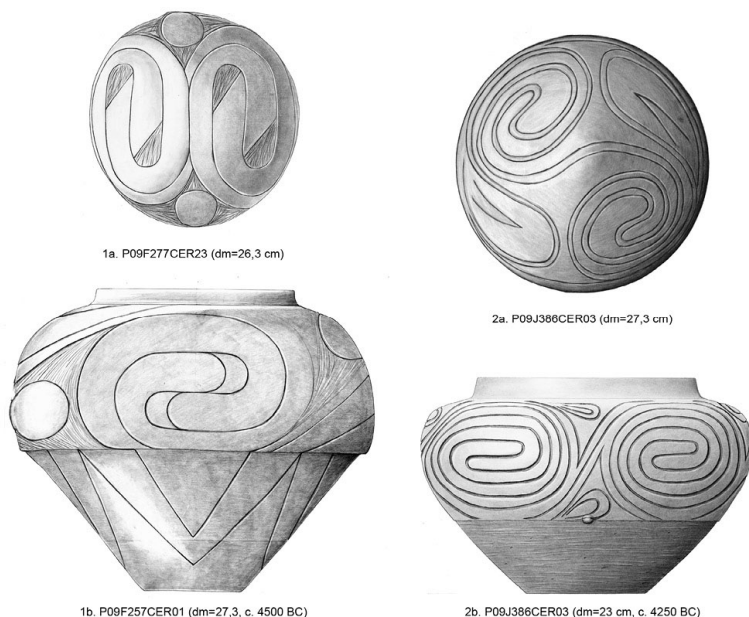


Figure 15.6. Pietrele, main motifs incised on lids and closed vessels: 1. helices and circles; 2. helices and drops (drawings by 1a–b: Cristina Georgescu; 2a: Irma Berdženishvili, 2b: Tilmann Vachta).

Tell sites in the Kamčija river basin are older than those in the Lower Danube region; their lowest levels can be dated to the Early Chalcolithic (EC) after 5000/4900 cal.BC. In Goljamo Delčevo graphite painting was in use since horizon 3 of the Middle Eneolithic, although white and red incrustations prevail.²⁹ The three dates from horizons 3 and 4 centre around 4700 cal. BC (Fig. 15.9).³⁰ Linear motifs on the outer surfaces of slightly closed vessels are executed in negative style accompanied by red and white paint,³¹ whereas on lids in positive style.³² Discrete graphite ornaments first appear as simple or right-angled bar-like motifs and after 4600 cal. BC, in the Late Chalcolithic (LC), as curvilinear motifs.³³

Graphite on the vessels from Ovčarovo occurs only on the outer surfaces of slightly closed vessels or on lids.³⁴ In levels 2–3 (acc. to Todorova phase Poljanica III of the EC), graphite was used in

addition to white and polychrome painting.³⁵ The motifs, thin lines, semicircles and circles are rendered in the negative. In levels 4–5 lids are decorated in the positive with broad lines and triangles, similar to those from Goljamo Delčevo horizon 4.³⁶ Throughout the Middle and Late Chalcolithic, motifs are rendered in the negative on closed vessels and in the positive on lids.³⁷

Along the Danube and its tributaries, the Chalcolithic (in Romanian terminology) or Late Chalcolithic (in Bulgarian terminology) started around 4600 cal. BC and ended around 4250 cal. BC. Near the coast the picture is similar: the oldest graves at Varna might have been used around 4600 BC; the end of the settlement at Durankulak³⁸ can be dated to *ca.* 4250 BC. The *ca.* two centuries that led to the flourishing cultural complex KGK VI deserve special attention: it seems appropriate to consider the final phase of the Late Neolithic (LN) in Romanian terminology (phase “Boian-Spanțov”) also as a transitional phase similar to the Middle Chalcolithic (MC) in Bulgarian terminology, especially since during 4750–4600 cal. BC a bundle of innovations, to which the graphite painting belongs, reached the region. This phase (Table 15.1 in dark grey shade) has not been reached in 2013 at Pietrele, Măgura Gorgana, yet.

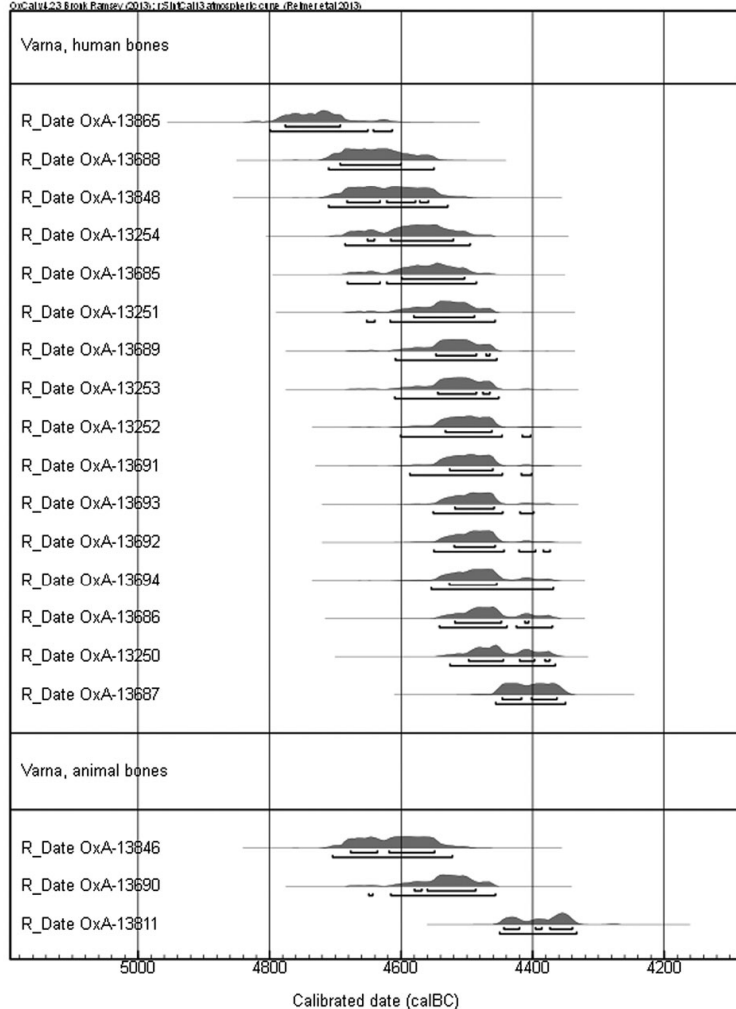


Figure 15.7. Varna, radiocarbon dates from human and animal bones.

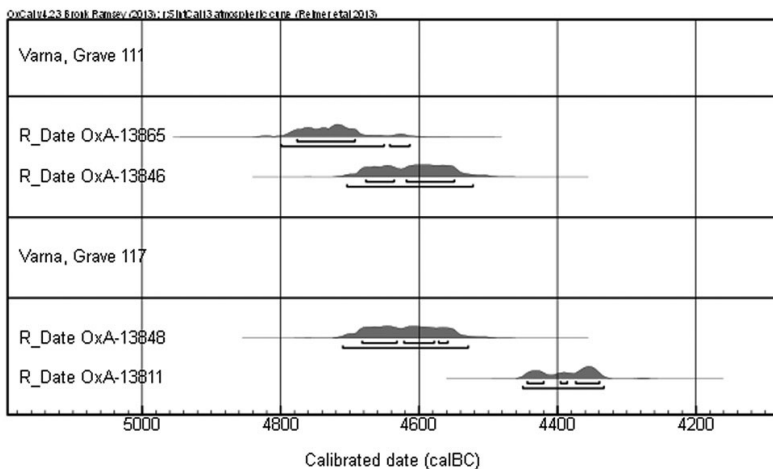


Figure 15.8. Varna: pairs of dated human and animal bones from Graves 111 and 117.

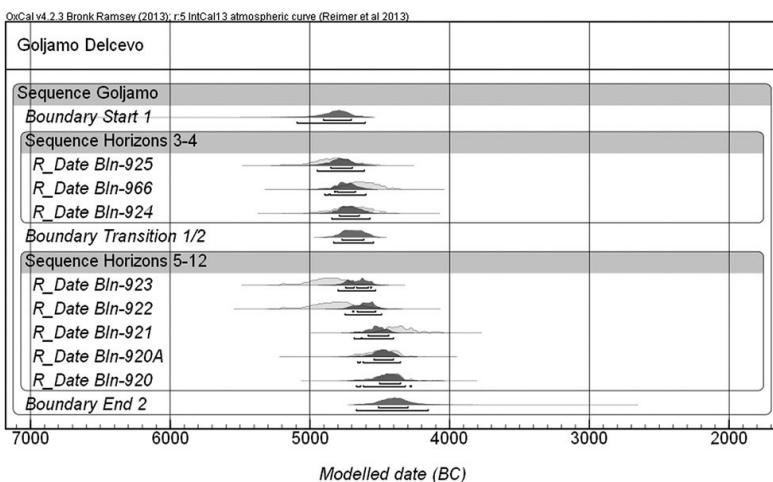


Figure 15.9. Goljamo Delčevo, modelled radiocarbon dates.

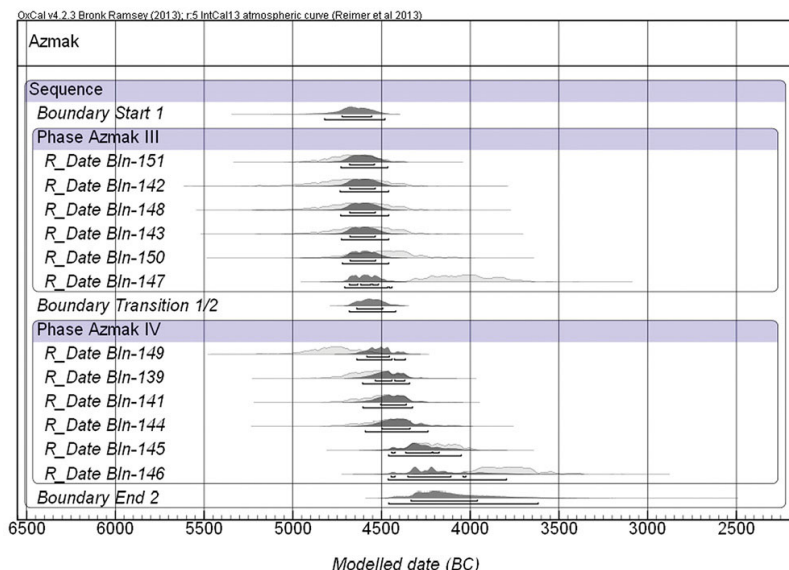


Figure 15.10. Tell Azmak, radiocarbon dates from seeds only, modelled according to phases III and IV.

Radiocarbon dated sites south of the Balkans with graphite paint

A cluster of sites in the Sredna Gora, along the Upper Tundža near Kazanluk and south of the mountainous hills in the district of Stara Zagora have been under excavation for more than 100 years. The most famous site in this area, Tell Karanovo, remains as good as unpublished for its Copper Age layers. Additionally, only selected well-preserved finds from other sites in this region circulate in the literature, mainly in catalogues. The important finds from Tell Azmak, for example, necessary for establishing a convincing scheme of relative chronology, are largely unknown. Fortunately, a series of 18 radiocarbon dates has been put forward from this site according to phases. They date phases Azmak III and IV (coeval with Karanovo V–VI) between 4900 and 3650 cal. BC. The reason for this seemingly long duration is the large standard deviation of 100 to 200 years. When roughly modelled according

to layers the dates from seeds reveal that Azmak III started not earlier than 4800 BC and belongs therefore mainly to the MC. The transition to Azmak IV (the LC phase) occurred around 4600 cal. BC (Fig. 15.10). There are no dates available from the youngest phase Azmak IV-4, but the sequence stops around 4300 cal. BC meaning that the tell also might have been abandoned only around 4250 cal. BC.

Judging from the few published finds, the graphite ornamentation consisted already in the beginning of thin parallel lines, either linear or curvilinear.³⁹ Published as “EC” (but by radiocarbon dates belonging to the MC) a closed medium-sized vessel and a “ceramic drum” are painted with thin lines resulting in helices.⁴⁰ The curved surface of a lid, on the other hand, is divided into four segments each of which displays three broad parallel lines separated by thin ones.⁴¹ To the LC belong a number of small cups (3–9 cm high) and mid-sized vessels (16–17 cm high) decorated under the rim with parallel lines or broader stripes leaving out the main motifs like semicircles, circles and triangles.⁴²

Along the Upper Marica river the most comprehensively published site of Junacite is also the westernmost of this region. The graphite painted pottery from this site has been published from a technological rather than relative chronological point of view. Thus, no distinction is possible between the ceramics of the two LC phases with a time depth of almost 400 years (Fig. 15.11). It is noticeable that in House 12 linear patterns in combination with red/ochre paste are present,⁴³ whereas in Houses 3 and 5 curvilinear and rectilinear helices with a rhombus in the centre dominate. In House 1 closed shapes appear with or without handles and broad registers of graphite ornaments painted in the negative.⁴⁴ Wide open plates are decorated either with two or four identical motifs or in zones arranged in concentric registers. The positive style consists of bundles of lines forming curvilinear or rectilinear helices with negative motifs only in the spandrels.⁴⁵

Motifs in the negative are the same as in Azmak: circles and semicircles separated by lines. Only one plate displays the “snake pattern”.⁴⁶

Table 15.1: Regions 1-6 with a schematic overview of ornamental styles and the resulting patterns in graphite (in light grey shade). Sequences of the different sites are organized according to their ¹⁴C dates and not according to the relative sequence proposed by the excavators (dark grey shade: levels of the purported Middle Chalcolithic according to the Bulgarian terminology)

<i>calBC</i>	<i>N-Aegean coast</i>	<i>Strymon valley</i>	<i>Upper Marica</i>	<i>Upper Tundža</i>	<i>“Aegean” motifs</i>	<i>Kamčija-Provadia</i>	<i>Lower Danube</i>	<i>“Pontic” motifs</i>
4250	DT IIC Sit IIC	TP IV (“EC”)	Jun. LC I-II		-pos “helices”	GD 11-17	Piet HP 1-3	-neg “waves”,
4300	-v.f. lines	v.f. lines	-helices curvi-	Azmak IV	in registers	Ovč 11-13	-lines in bundles	“drops” in reg.
4350	-several zones	-several zones	-rectilinear		-intersecting	-swastika-motif	-neg motifs in reg	-intersecting
4400	-circ in spandrels		-conc motifs	-simple lines	thin lines	-conc motifs	-conc motifs	thin lines
4450	Sit IIIB	Sl 5-6 “EC III”;	-rhombus in	-stylized vegetal	-spandrels	GD 8-10	Piet HP 4-6	-broad lines in
4500	-lines in bundles	-v.f. lines	spandrels	-neg orn (semi/	filled and geom	Ovč 8-10	-broad lines	pos+ neg style,
4550	Sit IIIA	-grp+red pnt	-neg orn: circle,	circle, triangle)	orn inscribed	-circ in neg	-neg motif	-2 or 4fold orn
4600	-filled spandrels	-neg in spandrels	-grp+red pnt		in the neg	-grp on rims	-grp+red+white	(“swastika”)
4650	DT IIB	TP IIIB (Sl 3-4;	Marica IV	Azmak III	-helices	GD/Ovč 3-7	not	
4700	-grp+inc “EC II”)	-broad	-neg non- linear	(“EC”): broad	curvi(linear)	-broad lines, circ	excavated	-grp+red+white
4750	-broad lines	and thin lines	-pos. (curvi) lin	and thin lines	-spandr filled	-grp+red+white	yet	
4800	DT IIA (Sit II)	TP IIIA (Sl 2)	Marica III:		-grp as fill	GD 2, Ovč 1-2		
4850	-broad grp lines	-broad grp lines	-pos. (curvi) lin	Azmak II	-grp with	-white and red		
4900	-inc+grp as fill	-grp+inc/ pricks	Marica I-II:		simple lines	-incisions		
4950	-black on red	-black on red	-grp. v.rare, lin		-inc helix			
5000	-Marica style	-Marica style	-incisions					

(Abbreviations for sites: DT=Dikili Tash, GD=Goljamo Delčevo, Jun = Junacite, Ovč = Ovčarovo, Piet HP = Pietrele housephase, Sit = Sitagroi, Sl = Slatino, TP = Topolnica-Promachon; other abbreviations: circ = circle, conc = concentric;geom. = geometric, grp = graphite, inc = incisions, lin = linear, neg = negative, orn = ornament, pnt = paint, pos = positive, reg = register spandr = spandrel, v.f. = very fine, v.rare = very rare).

When modelling the LC dates from Junacite, similar results to those from Azmak are obtained: the beginning of the LC phase can thus also be dated to 4600 BC, the end to *ca.* 4250 cal. BC (Fig. 15.11).

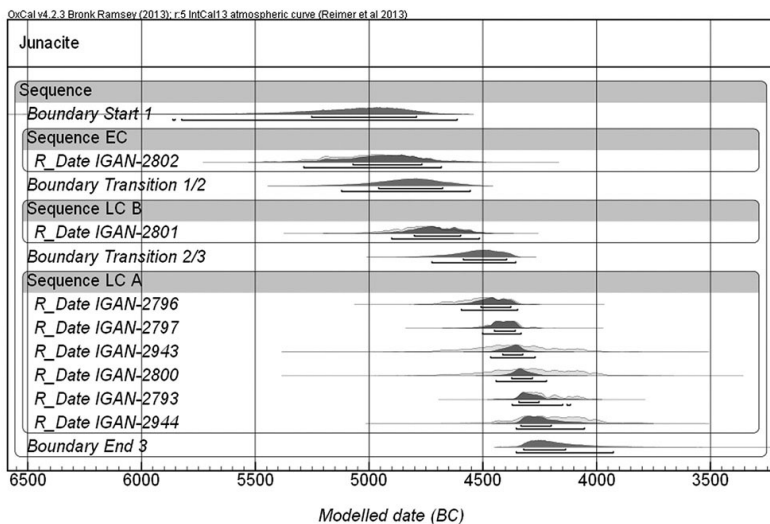


Figure 15.11. Junacite, modelled radiocarbon dates.

Graphite painted pottery in the Strymon/Struma valley

Slatino is said to be a site of the EC in the Upper Struma valley.⁴⁷ Regarding the ^{14}C dates from Slatino-Čardako some misunderstandings arise from the different assessments of phases: whereas the excavator places them all in horizon 3, Görsdorf and Boyadzhiev consider them as deriving from horizon 4.⁴⁸ The oldest and the youngest dates were extracted from grains of wheat; the other two are from charcoal. According to the excavator the date from Hannover is an outlier, being too young even for KGK VI – but this is only partially the case since the calibrated date falls within the 1σ -range between 4259–3995 cal. BC and at 2σ between 4358–3818 cal. BC and is therefore consistent with the end of KGK VI. Chohadzhiev takes into consideration the earliest

possible beginning of the oldest date, placing this way the EC II horizon at Slatino around 4800 cal. BC.⁴⁹ Such an early dating seems to be supported by the black on red pottery which is said to be an indicator for the transition from the LN to the EC, many motifs occurring both in black and in graphite paint.⁵⁰ Yet black on red pottery also appears much later during the LC, as shown by Chohadzhiev himself⁵¹ (see also below). Also another aspect in the relative chronological scheme of Chohadzhiev needs attention: before the year 2007 he made no distinction between an EC and a MC phase, the EC at Slatino covering therefore in absolute chronological terms the 48/47th century BC.⁵²

Two of the radiocarbon dates from Slatino place horizons 3–4 just as well into the centuries 4700–4500 cal. BC, when they overlap also with the older date Bln-3350 (Fig. 15.12). Around 4600 BC the MC in Thrace and North-Eastern Bulgaria ended. The consequence of such a reading of the dates from Slatino is the placement of the pottery from Slatino 5–6 into the LC – this is contrary to the relative chronology proposed by Chohadzhiev but not at all incompatible with the pottery traditions at Dikili Tash.

During the LN, no graphite painted sherds occurred at Slatino, such fragments – two sherds painted with simple lines – appearing first in the EC I in the flat site of Slatino-Karo I.⁵³ In the tell Slatino-Čardako, in the lower levels of the EC (and only there) graphite does appear accompanying pricks or incisions. The latter disappear in level 3, being a valuable chronological marker.⁵⁴ An interesting feature is the application of red paint: red and white paint in combination with incisions is detected in horizon 4; in horizons 5–6 the combination is of incisions and red paint.⁵⁵ The interesting combination of graphite and red paint also seems to be restricted to horizons 5 and 6 (according to the published figures).⁵⁶ There seems to be a tendency of first using graphite in zones rather than in lines and/or combining it with other pigments. Discrete graphite lines are thicker in lower levels and appear in bundles running in different directions, whereas in the

upper levels they can be as thin as 1.5–2 mm. In the upper horizons, a “negativization” is observed.⁵⁷ Yet, negative motifs (zigzags, circles) serve only as fill-ornaments in the corner spandrels, like at Dikili Tash. The main motifs in horizons 3–4 are: thick linear motifs; also, curvilinear lines that form interconnected hooks and helices.⁵⁸ Also typical are meander-helices next to spiralled helices. The former are formed by two rectilinear hooks facing each other, in the rhomboid centre of which is inscribed a circle. The repetition of linear motifs results in the appearance of corners and spandrels (most often distorted triangles or rhomboids, with a negative circle in their centre) that were covered also with graphite (Fig. 15.13.1–2).

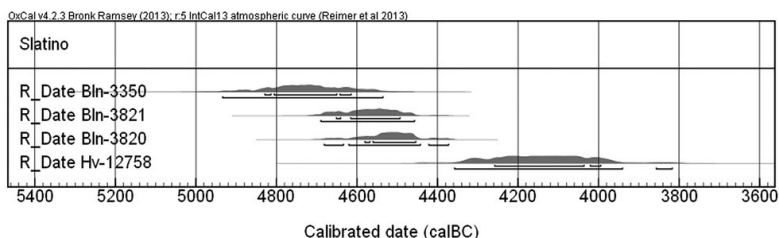


Figure 15.12. Slatino-Čardako, calibrated radiocarbon dates.

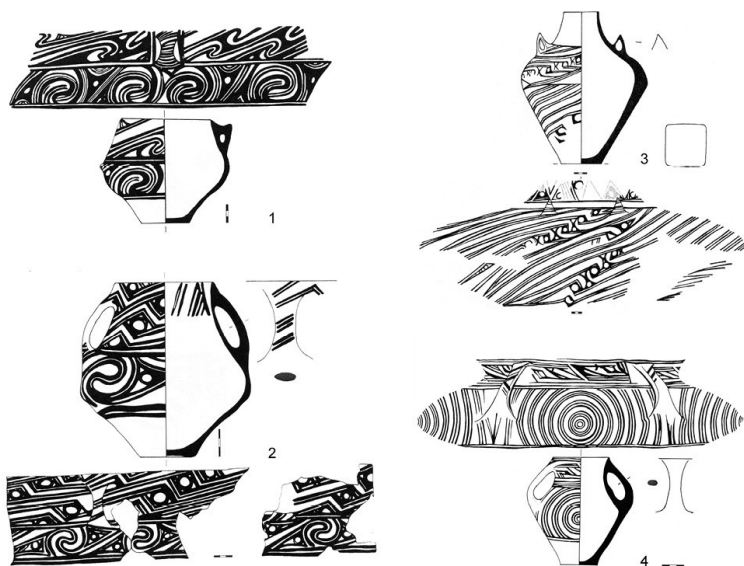


Figure 15.13. Slatino-Čardako, pottery from phases 3–6 (after Chohadzhiev 2006, figs 117, 123, 137).

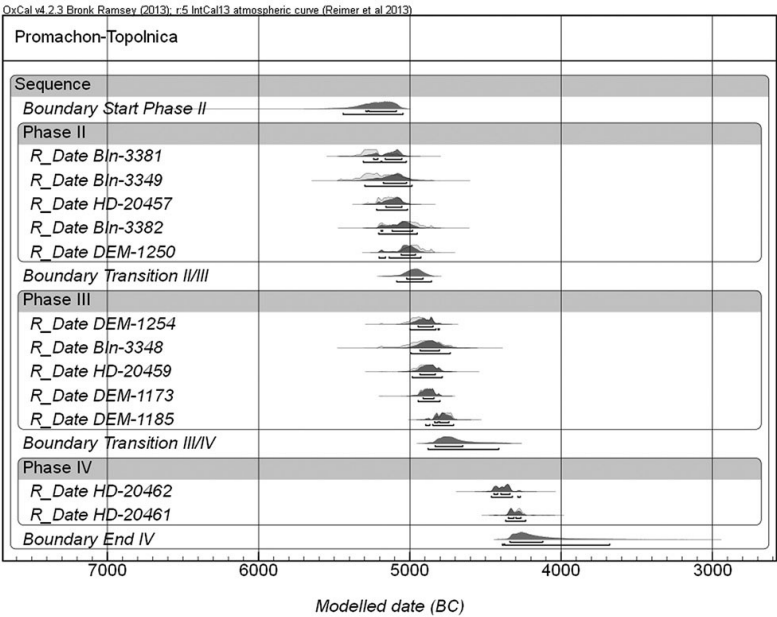


Figure 15.14. Promachon-Topolnica, modelled radiocarbon dates from phases II–IV.

In horizons 5–6 thin lines show more elaborate and sophisticated variations to the three main patterns: bundles of lines, sometimes concentric; spiralled helices; multiple meandering helices (Fig. 15.13.3–4).⁵⁹ Most impressive are the combinations of rounded and rectilinear helices, like on a plate – here too the (mostly triangular) surfaces in between the positive main motifs are filled with graphite in which a symbol in negative is rendered, just as in “EC II”.⁶⁰

A link connecting the Upper Strymon valley with the coastal area is the pottery from Promachon-Topolnica (PT) situated on the border between Bulgaria and Greece. Graphite has been used for decorative purposes since PT II when it was applied to the upper parts of black topped vessels.⁶¹ The first graphite painted motifs

appear in PT IIIA dated to *ca.* 5000–4700 cal. BC (Fig. 15.14). According to Vaysov, this can be directly connected to the black/brown on red/buff painted pottery of the Strumska-Akropotamos variant sharing not only the same motifs but also the same shapes of decorated vessels.⁶² In PT IIIB, 0.5–2 cm broad lines are accompanied by thin ones leading to very thin lines at the end of the “EC” and also into PT IV.

In the phase PT IV, according to the radiocarbon dates coeval with the phase Gumelnița A2 dating to 4400–4250 BC, only thin positive lines are applied on vessels fired in a reduced atmosphere.⁶³ Nevertheless, Vaysov places this phase in the early 5th millennium, simultaneous with the EC cultures of Slatino-Dikili Tash I and Marica.⁶⁴

The southernmost region, where the Lower Strymon and Nestos valleys discharge into the Aegean, has received a great amount of attention from Greek and foreign archaeologists, especially the sites of Sitagroi and Dikili Tash. The analysis of the Chalcolithic pottery from Dikili Tash, excavated under the directorship of J. Deshayes in 1961–75, was completed in 1986 and published in 2004. Correlation with ¹⁴C dates has not yet been performed – the pottery phases elaborated for Dikili Tash II are based on stylistic and typological changes. Although phase II lasted from *ca.* 4900–4300 cal. BC (Fig. 15.15), no specific breaks in pottery production can be singled out during these 600 years of continuous habitation.⁶⁵ The differences in decoration styles consist of a prevalence of incised motifs in the beginning and a shift towards graphite paint during the end of the phase. For example, the Marica style with incisions and ladder-like infills are abundant in Dikili Tash IIA and continue with fewer numbers of sherds throughout the entire phase.⁶⁶ The main motifs are rectilinear and curvilinear incised helices,⁶⁷ and the spandrels were painted with graphite. Graphite in these cases serves merely as fill (Fig. 15.16.1–2).⁶⁸

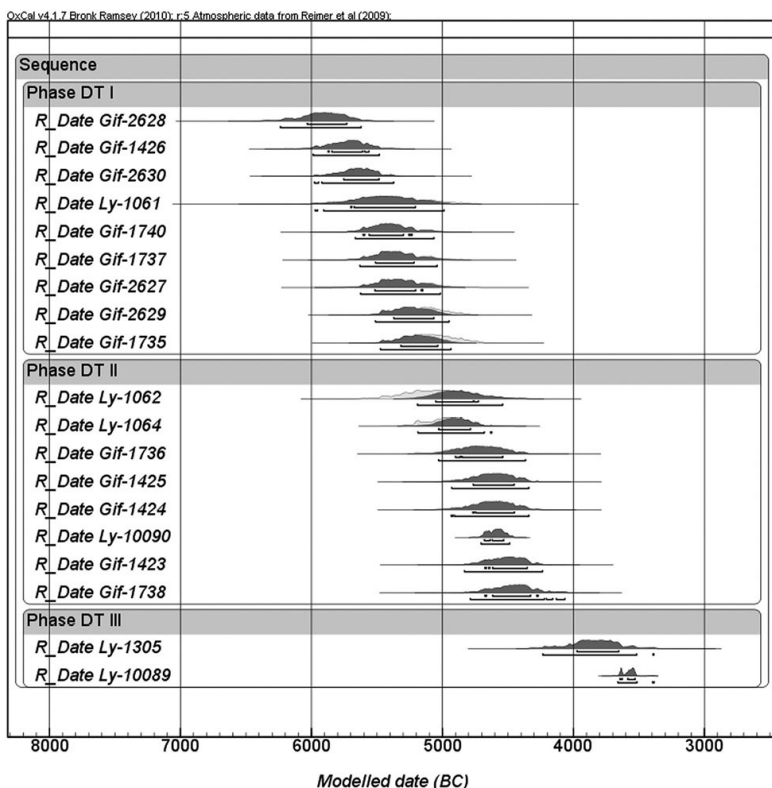


Figure 15.15. *Dikili Tash*, modelled radiocarbon dates from phases I–III.

Also present in phase DT IIA is black on red painted pottery that becomes more numerous in DT IIB and is still applied in DT IIC.⁶⁹ The tendency in this kind of ornament is the application of broader bands in the beginning, and multiple thin lines towards the end in DT IIC.⁷⁰ Main motifs are also rectilinear and curvilinear helices and spirals.⁷¹ The graphite ornaments are similar to those of the black on red pottery (Fig. 15.16.3–4);⁷² linear and spiralled helices and their derivatives were rendered in graphite, some graphite-painted spandrels containing circles in the negative (comparable to Slatino 5–6).

In phase DT IIB graphite was still used adjacent to incisions.⁷³ Simple conical bowls are elaborately decorated both inside and

out with lines usually broader than in the next phase.⁷⁴ In DT IIC ornaments are organised in several zones separated by very fine lines; as a rule, spandrels in between the positive helices and spirals are inscribed with circles in the negative. Often, very fine, irregular lines are intersecting.⁷⁵ Thicker lines were substituted by multiple thin lines, bundles of 3–4 parallel lines being the rule from IIB onwards.⁷⁶ Incisions are still in use, they were filled with white paste and appear on the lower parts of open conical bowls of which the upper third – that curves slightly inward – is ornamented with graphite (helices and loops).⁷⁷

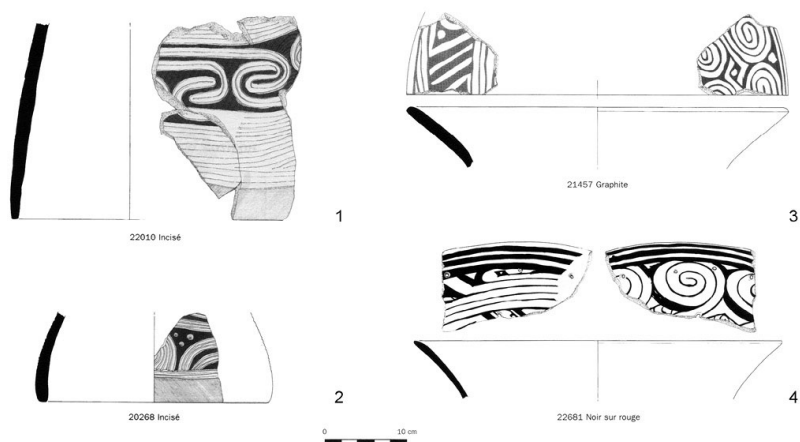


Figure 15.16. *Dikili Tash*, pottery from phase IIA (after Demoule 2004. pls 37–9).

On occasion of the very famous dates from Sitagroi, Sir C. Renfrew started an important discussion in 1971 that disassembled the generally accepted knowledge of that time and reassembled it again, providing the basis for new discussions.⁷⁸ At first it was thought that the phase Sitagroi III lasted until 3600 cal. BC – and indeed there is quite a young date in the sequence. But when modelled it appears that phase III lasted also here from *ca.* 4600 until 4200 cal. BC (Fig. 15.17). These results are supported by the dates from *Dikili Tash* where phase II ended around *ca.* 4300 cal. BC.

Similar to Dikili Tash, Sitagroi during the Copper Age was also linked to the Balkans rather than to the Aegean, not least by the use of graphite paint.⁷⁹ Already to Sitagroi II might belong two graphite painted sherds reflecting very early experimentation with graphite.⁸⁰ Graphite painting makes its latest appearance at Sitagroi III together with black on red paint. Most of the pots were fired in an oxygen-rich atmosphere at 730°C.⁸¹

Also similar to Dikili Tash II, three pottery phases were proposed for Sitagroi III, but gaps are postulated for the latter sequence.⁸² Certainly it might have been the case that people left the site for short periods, resettling after only a few decades. Yet short interruptions cannot be substantiated by the conventional ¹⁴C dates since the resolution of such dates is not refined enough.

Discussion and conclusions

Therefore, in a very general way, we can speak of two distinct traditions in the vast West Pontic area regarding both the shapes that were ornamented as well as the ornaments themselves:

1. The “Pontic tradition”: in the Lower Danube region, the main motifs are reserved in the negative: “waves” and “drops” are most often applied on the inner surface of bowls and cups or the outer surface of lids and certain closed shapes. Never are “helices” encountered in graphite – they appear only as incised decoration, the lines being filled with either red or white paste applied after firing.
2. The “Aegeo-Thracian tradition”: throughout the Strymon valley, but also in the Upper Marica and as far as the Upper Tundža similarities in pottery production are seen in:
 - specific shapes that were decorated: two-handled jugs with conical necks (amphorae) and simple conical bowls;
 - specific motifs that were painted: rectilinear and curvilinear helices in the positive; only in the spandrels were geometric figures reserved in the negative (circles,

semi-circles and triangles).

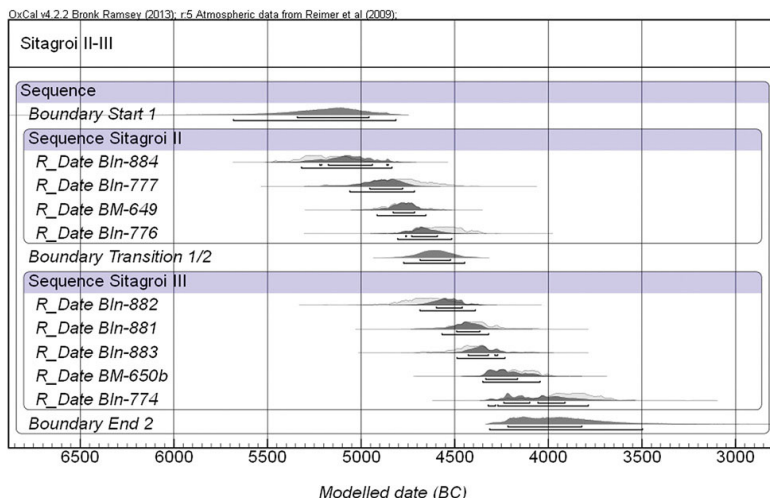


Figure 15.17. Sitagroi, modelled radiocarbon dates from phases II–III.

When taking into consideration the relative chronology of pottery styles, pottery specialists pursue a stringent picture based on the logic of possible anteriority, contemporaneity and posteriority of ornaments. Yet perception and logic are subject to personal ability and experience. Certainly, every archaeologist dealing with huge amounts of pottery “gets a feeling” for the sequences he/she is in charge of. But let us face it: more often than not we are confronted with evolutionist schemes resulting in linear models from simple to complex. This in some cases might be right. But when taking into account additional parameters as a corrective – in this case absolute chronology based on modelled ^{14}C dates – the outcome may differ. For graphite painting such an evolutionist model results in the linearity of:

- graphitised surfaces
- graphite as accompanying filling
- graphite combined with other colours and techniques
- discrete graphite in broad (positive) strokes
- graphite in thin (positive) lines

- graphite in spandrels (with or without negative motif therein)
- graphite in negative main motifs.

Such a line is not applicable to the “Pontic tradition”. Here, graphite is used from the very beginning to give contours to the negative main motif; thin intertwined lines are part of the complex ornaments on the same vessels. Neither is the succession of first positive and later negative ornaments valid in the “Aegeo-Thracian tradition”: from the very beginning negative ornaments adorn the spandrels – they even tend to become less frequent in Dikili Tash IIC.

Evolutionist schemes as postulated by H. Todorova⁸³ do not take into account the differences throughout the regions. Illustrated by three painted bowls from phases Marica IIIa, IIIb and Karanovo VI, it is thought that in the beginning positive lines dominated, followed by negative zonal ornaments, resulting finally in the abandonment of lines in favour of purely negative patterns. As has been argued, the pottery from Marica has to be analysed in the context of the “Aegeo-Thracian” style, whereas the bowl from Nevski, near Lovec, belongs to the “Pontic tradition”.

For the same reason caution is required with the “development of spiral-shaped motifs” from Junacite and other sites suggested by N. Todorova who posits a logical development from positive linear patterns to negative motifs.⁸⁴

The south-western and western area of pottery traditions along the Strymon-Iskar valleys are connected via Thrace with the north-eastern pottery tradition from the Danube, the Lom and the Kamčija rivers. The division can be followed up by the watersheds: sites close to the rivers that flow into the Black Sea display a “Pontic tradition” and sites near to rivers that flow into the Northern Aegean an “Aegean-Thracian tradition”.⁸⁵ The main symbols (“waves”, “drops”) appeared already on Neolithic pottery of Precucuteni III and Hamangia IV cultures in the northeast, and intertwined spirals (“helices”) are known from Starčevo and Karanovo I–II pottery in the Southwest. Yet, what their initial

meaning may have been remains largely a matter of interpretation.

Appendix

Table with ^{14}C dates used for the modelling of sequences and phases from the sites discussed in the paper. 1. Kohl and Quitta, 1966, 34–35; 2. Görsdorf and Boyadžiev 1996; 3. R. Treuil (ed) 1992; 4. Banador (<http://www.archeometrie.mom.fr/banadora/>); 5. H. Todorova *et al.* 1975, 2; 6. Boyadzhiev 1998, 361; 7. Junacite 2007, 234 tab. 1; 8. Weninger *et al.* 2010; 9. Hansen *et al.* 2012; 10. Renfrew 1971; 11. Bem 2000–2001, tab. 3; 12. Koukouli-Chryssanthaki *et al.* 2007; 13. Higham *et al.* 2007.

Appendix: Table with ^{14}C dates used for the modelling of sequences and phases from the sites discussed in the paper.

<i>Site</i>	<i>Lab.-No.</i>	<i>BP</i>	$\pm$	<i>BC 1σ</i>	<i>$\delta^{13}C$</i>	<i>Material</i>	<i>Unit, horizon, phase</i>	<i>Reference</i>
Azmak	Bln-141	5642	100	4680–4340	–23.60	seeds	Qu. B 84, hor. IV-3	1; 2
Azmak	Bln-135	5689	100	4690–4390	–25.70	charcoal	Qu. B 113, hor. IV-3	1; 2
Azmak	Bln-134	5546	200	4700–4100	–23.40	charcoal	Qu. B 98, hor. IV-3	1; 2
Azmak	Bln-138	5618	200	4720–4250	–25.20	charcoal	Qu. A115, hor. IV-3	1; 2
Azmak	Bln-144	5592	120	4550–4250	–25.30	seeds	Qu. G 83, hor. IV-2	1; 2
Azmak	Bln-131	5683	100	4680–4370	–27.10	charcoal	Qu. B 99, hor. IV-2	1; 2
Azmak	Bln-139	5698	100	4690–4410	–25.30	seeds	Qu. G 83, hor. IV-2	1; 2
Azmak	Bln-146	5006	150	3970–3650		seeds	Qu. W 84, hor. IV-1	1; 2
Azmak	Bln-145	5387	100	4340–4080	–25.20	seeds	Qu. B 116, hor. IV-1	1; 2
Azmak	Bln-149	5888	100	4940–4590		seeds	Qu. W 84, hor. IV-1	1; 2
Azmak	Bln-147	5214	150	4250–3800	–25.30	seeds	Qu. W 97, hor. III-4	1; 2
Azmak	Bln-137	5697	100	4690–4400		charcoal	Qu. W 115, hor. III-4	1; 2
Azmak	Bln-142	5793	150	4820–4460	–25.60	seeds	Qu. A 84, hor. III-4	1; 2
Azmak	Bln-148	5760	150	4790–4450		seeds	Qu. G 69, hor. III-3	1; 2
Azmak	Bln-151	5807	100	4790–4540	–26.40	seeds	Qu. G 69, hor. III-3	1; 2
Azmak	Bln-150	5632	150	4690–4640	–24.90	seeds	Qu. G 83, hor. III-2	1; 2
Azmak	Bln-143	5729	150	4770–4440	–25.50	seeds	Qu. W 70, hor. III-2	1; 2
Azmak	Bln-136	5840	100	4810–4550		charcoal	Qu. A 84, hor. III-2	1; 2
Dikili Tash I	Gif-2630	6720	160	5754–5485			niv XIV / W30 (sond. est)	3
Dikili Tash I	Gif-1740	6450	160	5607–5231			niv. 13? / X30	3
Dikili Tash I	Gif-1426	6800	150	5870–5562			niv. II / W30 (sond. est); niv. XI (Banadora)	3
Dikili Tash I	Gif-1735	6170	160	5311–4934			niv. 13 / X29, fosse	3
Dikili Tash I	Gif-1737	6400	160	5529–5214			niv. 13 / X29	3
Dikili Tash I	Gif-2628	7020	170	6046–5733			niv. 0.39 m / AA 28	3
Dikili Tash I	Gif-2629	6250	160	5372–5003			niv. 0.39 m / AA 28	3
Dikili Tash I	Gif-2627	6370	170	5511–5081			niv. 1.05 m / AA 28	3
Dikili Tash II	Gif-1423	5650	140	4669–4353			niv. VIII / W30	3
Dikili Tash II	Ly-1064	6040	120	5203–4789			niv. 16 / U24	3
Dikili Tash II	Ly-1062	6100	200	5292–4796			niv. 16 / T24	3
Dikili Tash II	Gif-1738	5600	150	4653–4271			niv. 16 / R24	3
Dikili Tash II	Gif-1736	5850	160	4908–4525			niv. 12 / X29	3
Dikili Tash II	Gif-1424	5750	140	4770–4454			niv. 9 / X29 Neo.	3
Dikili Tash II	Gif-1425	5750	140	4770–4454			niv. 16 / R24	3
Dikili Tash II?	Ly-10090	5740	45	4679–4535		bone		4
Dikili Tash III?	Ly-10089	4805	40	3645–3531		bone		4
Dikili Tash IIIA	Ly-1061	6480	270	5704–5080			niv. 14 / T24	3

<i>Site</i>	<i>Lab.-No.</i>	<i>BP</i>	$\pm$	<i>BC 1σ</i>	<i>$\delta^{13}C$</i>	<i>Material</i>	<i>Unit, horizon, phase</i>	<i>Reference</i>
Dikili Tash IIIB	Ly-1305	5030	160	3977–3653			niv. 3 / P24	3
Goljamo Delcevo	Bln-920	5590	100	4529–4342		charcoal	Qu. 462, hor. 12	5
Goljamo Delcevo	Bln-920A	5640	100	4582–4357		charcoal	Qu. 462, hor. 12	2
Goljamo Delcevo	Bln-921	5515	100	4461–4258		charcoal	Qu. 431, hor. 09	5
Goljamo Delcevo	Bln-922	5930	120	4988–4686		charcoal	Qu. 954, hor. 07	5
Goljamo Delcevo	Bln-923	5970	100	4982–4727		charcoal	Qu. 326, hor. 05	6
Goljamo Delcevo	Bln-924	5840	100	4799–4555		charcoal	Qu. 431, hor. 04	2
Goljamo Delcevo	Bln-966	5780	100	4727–4501		charcoal	Qu. 431, hor. 04	2
Goljamo Delcevo	Bln-925	5940	100	4952–4707		charcoal	Qu. 563, hor. 03	2
Junacite	IGAN-2944	5380	130	4338–4054		human bone	skeleton 72, Hor A	7
Junacite	IGAN-2796	5650	90	4578–4365		wood	central profile 5.30 m, Hor A	7
Junacite	IGAN-2797	5560	70	4456–4346		wood	central profile 5.52 m, Hor A	7
Junacite	IGAN-2943	5520	160	4548–4080		human bone	skeleton 66, Hor A	7
Junacite	IGAN-2800	5460	170	4459–4057		charcoal	central profile 5.37–5.41 m, Hor A	7
Junacite	IGAN-2793	5410	70	4346–4081		wood	central profile 5.45 m, Hor A	7
Junacite	IGAN-2801	5890	90	4899–4619		charcoal	central profile 7.08–7.40 m, Hor B	7
Junacite	IGAN-2802	6050	140	5207–4793		charcoal	central profile 8.55–8.59 m, EC	7
Pietrele	Bln-5716	5328	39	4236–4062	–24.7	wheat	P04/F/016	8
Pietrele	Bln-5717	5366	34	4322–4080	–25.5	cereals	P04/F/016	8
Pietrele	Bln-5718	5443	38	4342–4262	–24.8	cereals	P04/F/016	8
Pietrele	Bln-5720	5424	33	4333–4260	–25.1	charcoal	P04/F/003	8
Pietrele	Bln-5847	5602	47	4461–4366	–24.5	charcoal	P05/F/142	8
Pietrele	KIA29315	5520	30	4442–4336	–21.05	bone	P04/F/032	8
Pietrele	Bln-5930	5478	36	4357–4269	–26.0	charcoal	P06/F/366	8
Pietrele	Bln-5932	5473	32	4353–4269	–25.9	charcoal	P06/F/372	8
Pietrele	KIA39322	5548	32	4446–4350	–25.33	charcoal	P08/F/907	9
Pietrele	KN-5988	5770	33	4685–4584		charcoal	P07/F/402	9
Pietrele	KN-5989	5539	43	4446–4345		charcoal	P07/F/409	8
Pietrele	MAMS-14558	5602	25	4459–4371	–25.0	barley	P10/F/323	9
Pietrele	MAMS-14559	5632	24	4498–4406	–20.3	barley	P10/F/354	9
Pietrele	MAMS-14561	5689	24	4546–4490	–22.1	barley	P10/F/418	9
Pietrele	MAMS-14560	5671	23	4526–4464	–18.5	barley	P10/F/415	9
Promachon-Top.	HD-20461	5447	42	4345–4261	–19	bone	Qu. IA; 80,05 m.a.s.l.	12
Promachon-Top.	HD-20462	5530	48	4446–4339	–19	bone	Qu. IA; 80,01 m.a.s.l.	12

<i>Site</i>	<i>Lab.-No.</i>	<i>BP</i>	$\pm$	<i>BC 1σ</i>	<i>$\delta^{13}C$</i>	<i>Material</i>	<i>Unit, horizon, phase</i>	<i>Reference</i>
Promachon-Top.	DEM-1185	5895	33	4793–4723	–25	charcoal	Qu. ST, pasa 10; 79,31 m.a.s.l.	12
Promachon-Top.	DEM-1173	5996	25	4932–4844	–25	charcoal	Qu. ST, pasa 10; 79,30 m.a.s.l.	12
Promachon-Top.	HD-20459	5999	47	4946–4808	–19.3	bone	Qu. G;	12
Promachon-Top.	Bln-3348	6000	80	4992–4795		charcoal	Hor. 2b, Qu. M14; 0,90 m	12
Promachon-Top.	DEM-1254	6038	40	4997–4851	–25.77	charcoal	Qu. ST, pasa 11; 78,99 m.a.s.l.	12
Promachon-Top.	DEM-1250	6068	40	5042–4913	–25	charcoal	Qu. ST, pasa 11; 78,99 m.a.s.l.	12
Promachon-Top.	Bln-3382	6100	60	5205–4936		charcoal	Hor. 2c, Qu. J14; 1,10 m	12
Promachon-Top.	HD-20457	6188	38	5213–5070		charcoal	Qu. G; 78,17 m.a.s.l.	12
Promachon-Top.	Bln-3349	6240	90	5311–5066		charcoal	Hor. 2c, Qu. O12; 1,20 m	12
Promachon-Top.	Bln-3381	6270	60	5323–5081		charcoal	Hor. 2b, Qu. J11; 0,80 m	12
Sitagroi II	Bln-884	6240	100	5315–5059		charcoal	ZA 50	10
Sitagroi II	Bln-777	5920	120	4974–4620		charcoal	ZA 59	10
Sitagroi II	BM-649	5904	66	4877–4703		charcoal	ZA 50	10
Sitagroi II	Bln-776	5720	100	4686–4463		charcoal	ZA 52	10
Sitagroi III	Bln-881	5555	100	4504–4271		charcoal	ZB 125	10
Sitagroi III	Bln-882	5795	100	4770–4536		charcoal	MM 52	10
Sitagroi III	Bln-774	5100	120	4038–3715		charcoal	ZA 41a	10
Sitagroi III	BM-650b	5367	85	4327–4070		charcoal	ML 118	10
Sitagroi III	Bln-883	5545	100	4496–4269		wheat	MMb 69	10
Slatino-Cardako	Hv-12758	5305	111	4259–3995		wheat	Hor. 4,	11
Slatino-Cardako	Bln-3820	5680 $\pm$ 50		4580–4450		charcoal	Hor. 4, 1,25m	2
Slatino-Cardako	Bln-3821	5720 $\pm$ 50		4670–4470		charcoal	Hor. 4, 1,25m	2; 11
Slatino-Cardako	Bln-3350	5860 $\pm$ 80		4890–4590		wheat	Hor. 4, Qu. K8, 1,10m	2
Varna Cemetery	OxA-13251	5702	32	4584–4489		human bone	VEN 2/112	13
Varna Cemetery	OxA-13811	5530	36	4445–4340		bone	Grave 117	13
Varna Cemetery	OxA-13687	5569	32	4447–4364		human bone	B10/Area E	13
Varna Cemetery	OxA-13686	5639	32	4519–4406		human bone	B11/Area E	13
Varna Cemetery	OxA-13848	5766	36	4683–4556		human bone	Grave 117	13
Varna Cemetery	OxA-13865	5855	34	4777–4692		human bone	Grave 111	13
Varna Cemetery	OxA-13846	5757	34	4680–4550		bone	Grave 111	13
Varna Cemetery	OxA-13250	5626	31	4497–4375		human bone	VEN 1/94	13
Varna Cemetery	OxA-13694	5654	36	4528–4455		human bone	B137/Area N	13
Varna Cemetery	OxA-13692	5657	30	4521–4457		human bone	B44/Area WC	13

<i>Site</i>	<i>Lab.-No.</i>	<i>BP</i>	$\pm$	<i>BC 1σ</i>	<i>$\delta^{13}C$</i>	<i>Material</i>	<i>Unit, horizon, phase</i>	<i>Reference</i>
Varna Cemetery	OxA-13693	5660	29	4520–4459		human bone	B225/Area NE	13
Varna Cemetery	OxA-13691	5668	32	4526–4461		human bone	B215/Area NE	13
Varna Cemetery	OxA-13252	5672	34	4535–4462		human bone	VEN 3/121	13
Varna Cemetery	OxA-13253	5685	33	4545–4464		human bone	VEN 4/125	13
Varna Cemetery	OxA-13689	5690	32	4548–4464		human bone	B143/Area N	13
Varna Cemetery	OxA-13690	5700	30	4582–4488		bone	B143/Area N	13
Varna Cemetery	OxA-13688	5787	30	4692–4600		human bone	B158/Area W	13
Varna Cemetery	OxA-13685	5720	29	4600–4504		human bone	B43/Area E	13
Varna Cemetery	OxA-13254	5732	33	4652–4521		human bone	VEN 6/255	13

Notes

- 1 This article has benefited greatly from the reliable collaboration with members of the team working over many years in Pietrele. I would like to thank especially the director of the excavation, S. Hansen, for all his support, U. Koprivc for checking and discussing with me close to 3000 features and units necessary for clearing stratigraphical issues, and C. Schröder for persisting in processing with me the immense quantities of pottery from the site.
- 2 Lehrberger *et al.* 2011, 313–48.
- 3 Libby 1952.
- 4 A. Dittus pers. comm.
- 5 Chohadzhiev 2007, 79; Gardner 2003, 296; Vaysov 2007, 85.
- 6 Chohadzhiev 2007, 84; Vaysov 2007, 85.
- 7 Pechtl and Eibl 2011, 349–432.
- 8 Pechtl and Eibl 2011, fig. 2.
- 9 Gardner 2003, 284.
- 10 Benecke *et al.* 2013.
- 11 Parzinger and Özdoğan 1995, 17.
- 12 Görsdorf 2005, 417–22.
- 13 The goal of this study is a compact and comprehensive synopsis of the available published information. The rough picture presented here must and certainly will be improved in the future.
- 14 Reingruber 2015.
- 15 Benecke *et al.* 2013.
- 16 Relying on single dates from the end of the 5th millennium, the duration of the Gumelnița culture has been erroneously stretched by different authors into the 4th millennium BC (e.g. Bem 2000–2001; Bréhard and Bălășescu 2012). At Pietrele, the first level from the end of the Gumelnița culture is secured by ten radiocarbon dates from trenches B and F that, when modelled, do not fall below the value of 4250 cal. BC.
- 17 Problematic are the dates for house phase 4 with only poor agreements. Yet the previous and the following phases form a reliable sequence.
- 18 Hansen *et al.* 2012, 59–62; Reingruber 2015; Weninger *et al.* 2010, 141–9.
- 19 Hansen *et al.* 2011, figs 55–6.
- 20 Todorova H. 1978, 30.

- 21 Such motifs are often labelled “snakes” or S-like patterns – with today’s knowledge of the extensive use of bodies of water in the region I would rather tend to interpret them as waves, the accompanying concentric broad lines might even indicate breaking waves.
- 22 Marinescu-Bîlcu 1974, figs 58.8, 61.1 (both from phase Precucuteni III).
- 23 Todorova H. 2002a, vol. 2, e.g. table 37, grave 299, table 60, grave 415.
- 24 Palaguta 2007.
- 25 There is only one exception to this rule: on the large open bowls the basic principle of the “swastika”-motif that structures the inner surface into four segments is the rectangle whose four sides are prolonged from the base up to the rim. It can be interpreted as two pairs of interlocked linear helices that contain a geometric shape in the negative in their rectangular centre (Fig. 15.5.1, 4). Therefore, it is not a true “swastika” (Todorova H. 1978, 30) but rather a dislocated cross.
- 26 Also in Durankulak graphite paint is seldom met: of 1606 vessels only 29 were painted with graphite usually in combination with other techniques, Todorova H. 2002a, fig. 76. They appear first in Hamangia IV around 4600 cal. BC, Boyadzhiev 2002, 69.
- 27 Fol and Lichardus 1988, 47, fig. 19.
- 28 Honch *et al.* 2006, 1493–504.
- 29 Todorova H. 1982, 92. Some sherds with graphite might be attributed to the second horizon of the Early Eneolithic, Todorova H. 1982, 88.
- 30 Görsdorf and Boyadzhiev 1996.
- 31 Todorova H. *et al.* 1975, 92, no 13, pl. 21.6.
- 32 Todorova H. *et al.* 1975, pls 30.8–9, 36.3, 6, 8.
- 33 Todorova H. 1982, figs 53.12–13, 54.1–2, 59.21–22.
- 34 Todorova H. 1982, figs 75–87. From the two published exceptions one bowl is painted with a yellowish paste, the other possibly with graphite, Todorova H. 1982, figs 84.1, 87.11.
- 35 Todorova H. 1982, 75–6.
- 36 Todorova H. 1982, figs 77.1–8.
- 37 Todorova H. 1982, figs 82–7.
- 38 Boyadzhiev 2002, 67–9.

- 39 Todorova H. 1978, tab. 17. In her chronological system, this phase is coeval with Marica IIIA of the Early Chalcolithic.
- 40 Kalchev 2005, 23, 27. An anthropo-zoomorphic vessel from nearby Stara Zagora was painted in the same way, Kalchev 2005, 50. Also the Chalcolithic sites from this region like Čatalca (Stara Zagora), Madrec, Kirilovo, Kalchev 2005, 24–6, bear the linear thin line motifs resulting in helices or concentric circles or broad stripes – no negative motifs being intended.
- 41 Kalchev 2005, 27.
- 42 Kalchev 2005, 31–3.
- 43 Todorova N. 2003, pl. 12.5, 7.
- 44 Todorova N. 2003, tab. 12.2–3; Todorova N. and Matsanova 2000, Fig. 26.6.3.
- 45 Todorova N. and Matsanova 2000, Fig. 26.1, 3–4.
- 46 Todorova N. 2003, tab 11.1.
- 47 Chohadzhiev 2006, 77.
- 48 Chohadzhiev 2006, 48; Görsdorf and Boyadzhiev 1996, 146. However, both horizons belong to the EC II (Chohadzhiev 2006, 92, tab. 11).
- 49 Chohadzhiev 2006, 48.
- 50 Chohadzhiev 2007, 98–9. The LN III phases Akropotamos IIIA–B that are distributed northward through the Struma valley are known in two basic variants: brown on beige (in Sitagroi I and Dikili Tash Ia) or brown on red and black on red (Sitagroi II and Dikili Tash IB).
- 51 Chohadzhiev 2006, fig. 11, 203. Brown on beige or on red surfaces was common in the EC II but not anymore in EC III with the appearance of black on red, Chohadzhiev 2006, tab. 10.
- 52 Chohadzhiev 2007, 101.
- 53 Chohadzhiev 2006, Fig. 66.9–10.
- 54 Chohadzhiev 2006, 67, Fig. 98.26–30. The graphite covers the major part of the surface. In it lines were incised that possibly were filled with white colour; or the graphite served just as filling, secondary to the main incised motive.
- 55 Chohadzhiev 2006, 67, figs 99.15–26, 113.6, 116.4.
- 56 Horizon 5, Chohadzhiev 2006, figs 122.2–4, 131.9, 205 right upper corner; horizon 6, Chohadzhiev 2006, figs 138.5, 147.12. Junacite House 12 also had vessels with red paint and graphite – here they belong to the LC.

- 57 Chohadzhiev 2006, 65–6, Fig. 92.4–7.
- 58 Chohadzhiev 2006, figs 115.10, 116.2, 117.1.
- 59 Chohadzhiev 2006, figs 120.13, 137.3, 121.10, 123.1, 4. Chohadzhiev insists that meanders and spirals are rare in EC III, Chohadzhiev 2006, 66, a view not supported by the published figures.
- 60 Chohadzhiev 2006, Fig. 135.3, compare with figs 132.6, 137.5, 143.8.
- 61 Vaysov 2007, 98.
- 62 Vaysov 2007, 97.
- 63 Vaysov 2007, 102, fig. 27. Yet the figures show oxidised reddish surfaces (fig. 18, 2–3). Also the graphite painted vessels from Sitagroi III were all oxidised (Gardner 2003, 296).
- 64 Vaysov 2007, 105, fig.
- 65 Demoule 2004, tab. 4.14.
- 66 Demoule 2004, 219, [tab. 3.2.d](#).
- 67 Demoule 2004, 244, tab. 3.20.
- 68 Demoule 2004, pl. 39.
- 69 Demoule 2004, 218, [tab. 3.2.b](#).
- 70 Demoule 2004, 238, tab. 3.13.
- 71 Demoule 2004, 239, tab. 3.14.
- 72 Demoule 2004, pls 36–7, pl. E. This technique is in use until the end of DT IIC around 4300 BC.
- 73 Demoule 2004, pls 42–3.
- 74 Demoule 2004, pls B.1–3, C.1
- 75 Demoule 2004, pls 95–105.
- 76 Demoule 2004, 234, tab. 3.7–8.
- 77 Demoule 2004, pl. C.2–4.
- 78 Elster and Renfrew 1986; Renfrew 1971, 275–82.
- 79 Gardner 2003, 296.
- 80 Gardner 2003, 286.
- 81 Gardner 2003, 288–9.
- 82 Demoule 2004, 263 tab. 4.14. We have to bear in mind that the pottery phases elaborated for the two sites are nothing more (but also no less) than stylistic phases; possible gaps and discontinuities possibly reflect stylistic absences in the decoration programme.
- 83 Todorova, H. 1978, tab. 17.
- 84 Todorova, N. 2003, 300, tab. 7.16–23.

85 Whether the picture described here may be supported for example by the use of raw material sources, especially of metals and flints, must be proven in the future. Further, the circulation of end products, especially the different types of metal tools (*e.g.* Vidra and Pločnik axes) has to be contrasted with the information of their metal content and mapped according to the different regions outlined here.

Lithic technology in the region between the Lower Danube and Marmara in the 6th and 5th millennia BC

Ivan Gatsov and Petranka Nedelcheva

Introduction

In this paper, some findings concerning the main features of the lithic technology that spread from the Lower Danube to the Marmara region during the 6th and 5th millennium BC are introduced, as well as basic characteristics of material systems of procurement and supply of raw materials. Regarding the Lower Danube region, this essay discusses the chipped stone assemblage recorded from 2003 to 2012 at the site of Măgura Gorgana near the village of Pietrele. The site is located in the area of the Lower Danube, on the Romanian bank of the river. The lithic material includes around 12,000 pieces from different periods and trenches, dating from the Middle Neolithic until the end of the Chalcolithic period in Bulgarian chronology. Due to the fact that the excavation process is ongoing, only around 5000 items have precise stratigraphical association from the Chalcolithic levels. Bearing in mind the scale and quantity of finds involved in the research, this settlement is regarded as a key site from the second half of the 5th millennium BC in the area of Lower Danube.¹

Raw material procurement and supply

In the case of Pietrele-Măgura Gorgana, the system of raw material procurement and supply during the Chalcolithic period was based on flint sources located in the area of present-day North-East Bulgaria and in particular the region of Ludogorsko plateau.² More precisely, the settlers procured flint from the area of Ravno, and to a lesser extent from Kriva reka and Nikopol. The petrographic characteristics and a description of the macroscopic and microscopic features of the individual flint types used during the life-time of the settlement have been investigated by Ch. Nachev.³

Currently, no flint artefacts of local origin from the Early and Late Chalcolithic at Pietrele-Măgura Gorgana have been recorded. High quality raw flint deposits have not been found on the Romanian bank of the River Danube; the population was thus forced to obtain flint from the area of present-day North-Eastern Bulgaria or the opposite bank of the river. As all lithics come from flint sources located in the area of North-East Bulgaria, this implies the existence of boats or rafts designed to cross the river and some kind of organisation to acquire the flint raw materials.⁴

Varieties of these raw materials have been recorded throughout the entire Chalcolithic sequence at Pietrele-Măgura Gorgana. They are differentiated by the nodule dimensions and flint knapping method, which to a certain extent predetermined the type of detachment techniques. These two characteristics met the technological requirements of the Chalcolithic population in the region under discussion, thus producing long, standardised prismatic blades. This is especially true of Ravno flint, which possesses the best knapping quality, and constitutes the basis of the raw material system of procurement and was a dominant flint type within the lithic assemblages. In this context, Chapman and others have rightly stated that “the surface exposures of Northeast Bulgaria provided high-quality flint for macroblade production for settlements over much of the South Balkans, as well as in the North Pontic and Eastern Carpathian zones.”⁵

Although the exact location of the flint workshops has not yet been found, it should be supposed that they were situated in the areas mentioned above. Certainly, all activities connected with nodule acquisition, core preparation and reduction took place in workshops situated in the flint source areas of Ravno, Kriva reka and Nikopol. Considering the huge quantity of similar blades recorded within the excavated area of Pietrele-Măgura Gorgana, and the lack of cores, cortical and crested specimens, and debris or waste, the blades were likely brought to the site most likely by a direct system of supply.

After the publications by L. Manolakakis⁶ and N. Sirakov⁷ it can be argued that the Pietrele-Măgura Gorgana lithic industry displays some characteristics similar to those at Durankulak and the Varna necropolis. During the Early Chalcolithic, the varieties of raw material used and their frequency of occurrence are similar to those from the period of the Late Chalcolithic.

Detachment techniques

In the lithic analysis, special attention was given to the mode of blade detachment together with the corresponding types of production. At Pietrele-Măgura Gorgana, the basic modes of obtaining blanks of the Chalcolithic lithic assemblage were the lever, standing pressure and punch or indirect percussion (Fig. 16.1); whereas direct organic and direct hard percussion techniques were applied to a much lesser degree.

Lever pressure

Regarding this technique, the parallelism of the edges and arris, morphology of the butts, shoulders, convexity of profiles, type and location of bulbs, and types of ripples, as well as the blade size, have been taken into consideration. The result of using this mode of detachment is regular and standardised blades with a width of more than 21 mm. The lever pressure blades are characterised by small butt, high and short bulbs on the ventral side, and

“feathering termination” underlining the regular shape, together with a slightly curved profile on the distal end, and thin cross-section.⁸

Standing pressure

Among the Pietrele-Măgura Gorgana Early and Late Chalcolithic chipped stone assemblages, a quantity of blades detached by standing pressure has also been recorded. This type of detachment generally related to a relatively long crutch applied in a standing position and using different means to hold the core so that it would not move. The standing pressure blades from Chalcolithic Pietrele-Măgura Gorgana display a very regular shape, parallel edges on their dorsal pattern, and a slightly curved profile. Following the experiments of J. Pelegrin, blades with the above-mentioned features and width, more than 7 mm and less than 21–2 mm have been separated.⁹ Blades with a width up to 8 mm are missing, implying that core reduction was made through a long crutch in a standing position with the help of applying the full weight of the body.



Figure 16.1. Chalcolithic lithics from Măgura Gorgana near Pietrele, manufactured by punch or indirect percussion standing and lever pressure techniques of detachment.

Indirect punch percussion

Thick specimens featuring a non-regular and pointed shape and a strong curved profile are related to this group. Moreover, these blades usually display thick butts with part of the overhang remaining. In the case of Pietrele-Măgura Gorgana, punch or indirect percussion blades came to the settlement in addition the pressure type blades.

Direct percussion

This technique was connected with some non-diagnostic flakes on a very small scale. Concerning direct percussion usage, no evidence regarding blades has been found and so no specimens with corresponding morphological characteristics and technical marks have been recorded. Direct percussion was practiced during off-site core preparation activities. The small quantity of non-diagnostic flakes detached by direct hard percussion at the site may be explained by their “bottom of the bag” appearance.

The Chalcolithic chipped stone assemblage of Pietrele-Măgura Gorgana is characterised by strong invariable blade technology, which includes similar flint varieties, similar modes of detachment, similar unidirectional blanks in the form of prismatic blades, and a uniform tool repertoire. At this stage of the study, it may be noted that there are no reliable arguments for believing that lever specimens were imported, while the remaining types connected with standing pressure and indirect percussion were produced on the spot, and also within the settlement. It should be emphasised that all blades were brought into the settlement.

Discussion and conclusions

On the whole, the main technological features of the Chalcolithic

Pietrele-Măgura Gorgana chipped stone assemblages are similar to the Chalcolithic assemblages from North-East Bulgaria such as Durankulak, the Varna necropolis and Hotnitsa, and also those of South-East Bulgaria, namely Azmak (Early and Late Chalcolithic layers) and Drama Merdžumekja (Karanovo V and VI periods). The strong continuity in lithic technology among the Early and Late Chalcolithic assemblages found at all sites listed above is confirmed by the research at the site of Pietrele-Măgura Gorgana. There is no indication of any kind of internal technological evolution among the Early and Late Chalcolithic assemblages; neither at Pietrele-Măgura Gorgana nor in other already processed lithic assemblages.

This technology was in use during the 5th millennium BC from the Lower Danube to the northern and south-east parts of Bulgaria and displays similar characteristics regarding blade technology and blade tool manufacturing; and a similar system of raw material procurement and supply. On the other hand, the Chalcolithic assemblages are completely different from Neolithic ones.¹⁰

In a southerly direction, the picture is totally different. In the territory of Turkish Thrace, two key sites, Hoca Çeşme Phases 4–2 and Aşağı Pınar periods 5–2 have been examined.¹¹ Both settlements have revealed information about lithic technology, typology and the system of procurement of raw material dating from the end of the 7th millennium BC to the beginning of the 5th millennium BC in Turkish Thrace. On the whole, the Hoca Çeşme Phases 4–2 assemblage consists of a small number of multidirectional flake/blade cores, cortical flakes, non-diagnostic specimens, debris, small irregular blades, and a few formal tools. The system of procurement was linked to local raw materials abundant in the vicinity of the settlement. Technological activities were limited to direct percussion and *ad hoc* tool manufacturing (Fig. 16.2.1–6). Within the Hoca Çeşme Phase 2 assemblage, a few blades with semi steep and steep retouches, manufactured of high

quality yellow flint (Fig. 16.2.7–9) and typical of both Early Neolithic Karanovo I and Karanovo II (6000–5800 BC) and Azmak (Early Neolithic layer) have been recorded. These blades could reflect some kind of contact between the eastern and northern/upper region in the beginning of the 6th millennium BC.¹²

The Aşağı Pınar lithic assemblage, on the other hand, is characterised by small size blade and flake cores which were knapped on the spot, mostly by direct and to a lesser degree indirect percussion. The formal tools are represented mostly by micro-end scrapers, micro-perforators, and micro-drills (Fig. 16.3.1–19).

As far as the Southern and Eastern Marmara region is concerned, available archaeological evidence presents a very characteristic bullet core technology. The lithic assemblages at Ilıpınar, Menteşe, Fikirtepe, Pendik, Aktopraklık,¹³ Barçın Höyük and Gülpınar consist of single platform conical cores which, in their final stage of reduction, are bullet specimens for blades and bladelets (Fig. 16.4.1–6). The latter go together with circular and semi-circular flat-end scrapers, thick-end scrapers, blade perforators and drills, micro-end scrapers and trapezes or transversal arrowheads,¹⁴ and denticulated tools; there is a lack of burins, backed blades, retouched bladelets and pieces with abrupt retouches. The reduction techniques were realised by standing and hand pressure, punch and direct mode of detachment. Up to now, no indication of the application of lever pressure has been recorded.

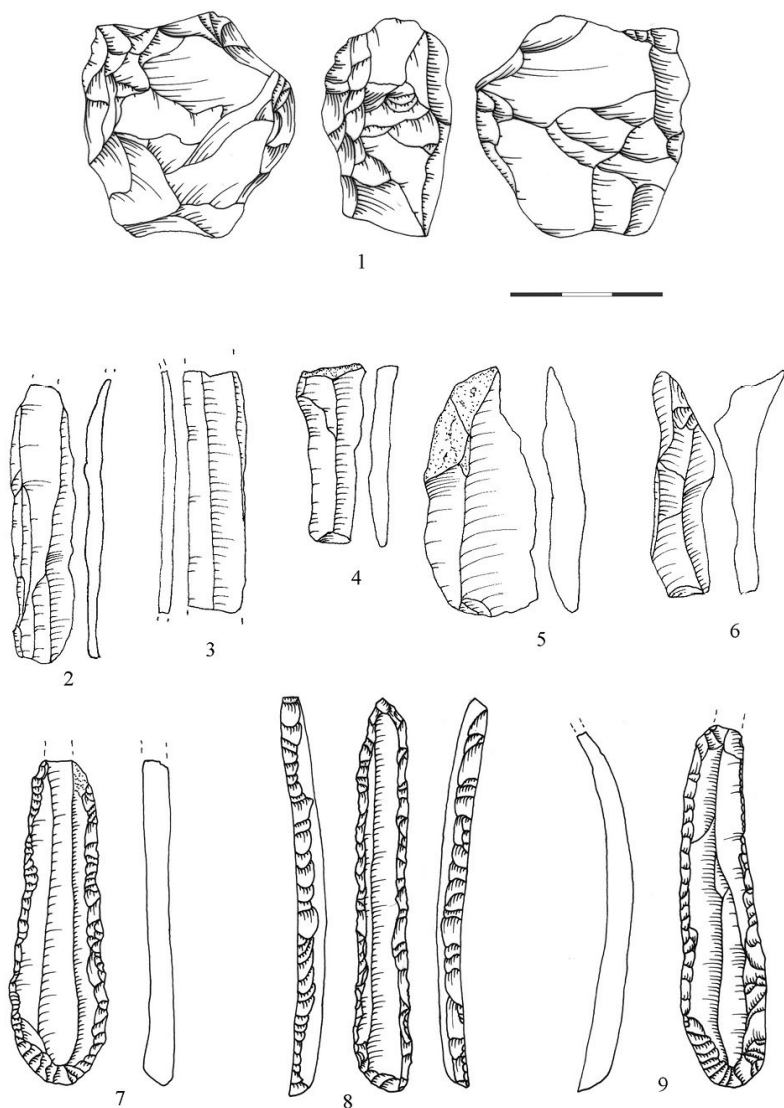


Figure 16.2. Lithics from Hoca Çeşme: 1: core; 2–4: blades; 5: flake; 6: plunging; 7–9: blades with high retouch.

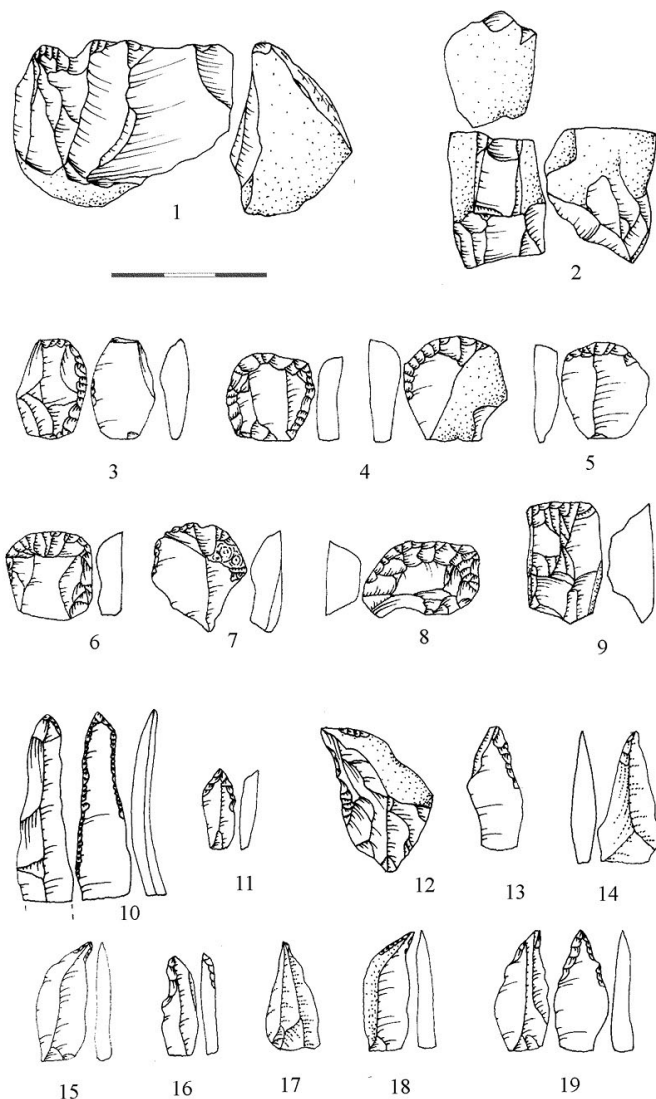


Figure 16.3. Lithics from Aşağı Pinar: 1–2: cores; 3–9: micro end scrapers; 10: drill on crest blade; 11–19: micro perforators and drills.

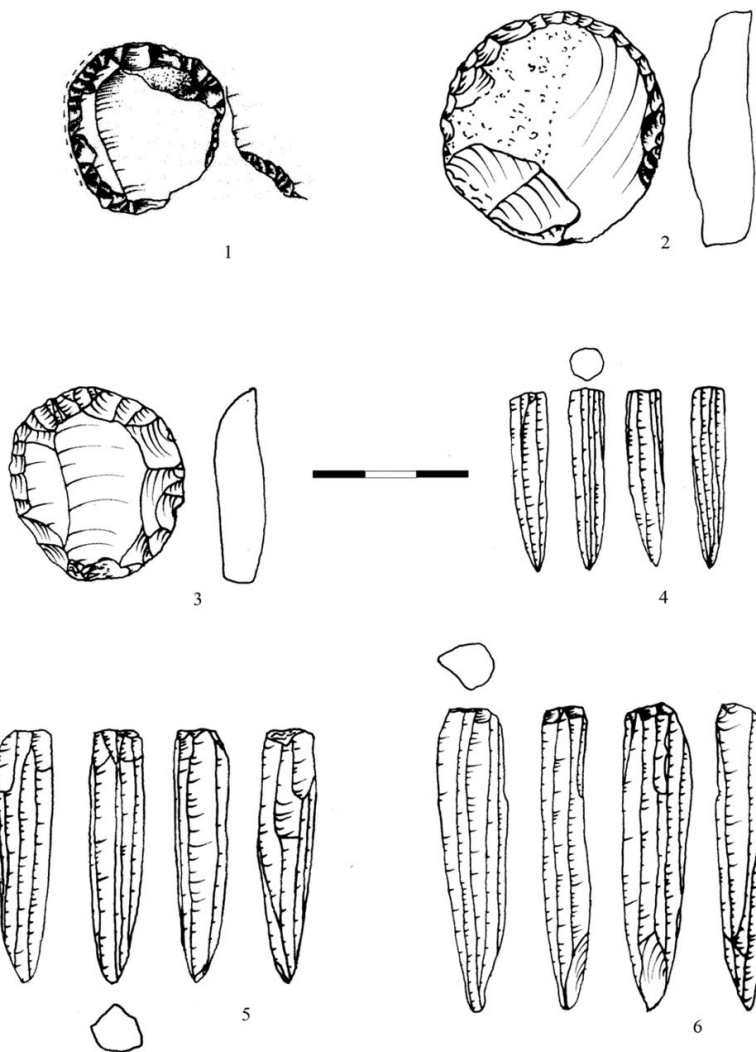


Figure 16.4. Lithics from north-west Anatolian sites in the Marmara region: 1: semi-circular end scraper from Ilıpınar; 2: semi-circular end scraper from Barçın Höyük; 3: semi-circular end scraper from Aktopraklık; 4: bullet core from Ilıpınar; 5: bullet core from Aktopraklık; 6: bullet core from Barçın Höyük.

Chronologically, this technology is related to a period between the 7th and 5th millennia BC. This statement is based on the most recent dates from the Gölpinar excavations.¹⁵ This technology

lasted without significant change for around 1500 years in the lands of Western Anatolia and particularly in the region south and east of the Marmara Sea.¹⁶ The above-described bullet technology can be seen as a supra-regional phenomenon.¹⁷

Here, some of the latest results concerning published finds from the research of T. Efe at the site of Keçiçayırı in the Eskişehir region also deserve mention.¹⁸ Although there are many questions regarding these artefacts, one thing is certain: this material is totally different in respect to the above-presented bullet technology. This fact, together with the stratigraphic information provided by the excavator, raises the possibility that this territory had been penetrated by newcomers before the appearance of the first bearers of pottery in the middle of the 7th millennium BC.

Notes

- 1 Hansen *et al.* 2008, 21, 46–8.
- 2 Manolakakis 2011, 225–44.
- 3 Nachev forthcoming.
- 4 Perlès 2001, 207, 356
- 5 Chapman *et al.* 2006, 164.
- 6 Manolakakis 2005; Manolakakis 2011, 225–41.
- 7 Sirakov 2002, 213–46
- 8 Tixier 1984, 66
- 9 Pelegrin 2012, 479, Fig. 18.12
- 10 Gatsov 2009; Gatsov and Nedelcheva 2009, 45–55
- 11 Parzinger and Schwarzberg 2005, 417–22.
- 12 Gatsov 2009, 45–55.
- 13 Balcı 2011, 1–11; Gatsov *et al.* 2013; Karul and Avcı 2011, 1–15.
- 14 Alpaslan-Roodenberg 2011, 60–1.
- 15 Gatsov and Nedelcheva 2014; Takaoğlu 2006.
- 16 Özdoğan 2011a, 415–30; Özdoğan 2011b, 23–33
- 17 Gatsov and Nedelcheva 2011, 93.
- 18 Efe *et al.* 2012, 227–36.

Synchronisation of the Albanian and North Aegean Late Neolithic periods: New data from the lakeside dwelling of Kallamas (Albania)

Cécile Oberweiler, Gilles Touchais and Petrika Lera

Introduction

The current chronological framework of Albanian prehistory was established in the 1970s and 1980s on the basis of the excavations carried out in the Korçë basin, South-Eastern Albania (Fig. 17.1). It is the richest and best documented region of Albania in terms of prehistoric occupation.

A first chrono-typological sequence was proposed at the end of the 1960s, following extensive excavations at the lakeside dwelling of Maliq.¹ These provided the longest stratigraphic sequence of the region, running from the end of the Neolithic to the beginning of the Iron Age. This sequence further allowed setting the prehistoric material cultures of Southern Albania in a relative sequence, based on typological comparisons with artefacts discovered in the neighbouring regions. The Albanian Neolithic is, then, divided into the traditional tripartite sequence in use all over Europe and the Balkans: the Early Neolithic, Middle Neolithic and Late Neolithic, followed by the Eneolithic period, a transitional

phase before the EBA also known as the Chalcolithic period. Nevertheless, the internal subdivisions of the sequence lack absolute anchorage. Until the early 1990s, when the first radiocarbon dating was performed in Albania, only material synchronisms prevailed. The only absolute markers at hand were those offered by comparisons with adjacent cultural areas, especially with ex-Yugoslavia and Bulgaria but also with Greek Macedonia and Thessaly.

On the basis of F. Prendi's work,² who was one of the pioneer prehistorians in Albanian archaeology, the following is a brief account of the Albanian chronology as it is still used today: The Early Neolithic in South-Eastern Albania is usually represented by the Vashtemi-Podgoria I culture characterised by a red monochrome pottery, a pottery painted in white on red burnished surfaces and an impresso ware (Fig. 17.2); the barbotine is also a very common decoration. In fact, all of these features are quite common from Thessaly to the Northern Balkans. Nevertheless, close parallels were more specifically found with the Anzabegovo Ic and the pre-Sesklo cultures. The Middle Neolithic is defined by the Cakran-Dunavec culture characterised by a grey-black ware with biconical shapes, and incised pottery with geometric patterns sometimes filled with white paste (Fig. 17.3); parallels have been found especially in Serbia phase III, the Tsangli-Larissa phase and at Elatea.

The Late Neolithic is defined by Maliq I also called the Maliq-Kamnik culture; vase shapes and decorative motifs of its pottery are comparable, in part, with the Dimini classic ware (Fig. 17.4).

The Late Neolithic is followed by the Eneolithic or Chalcolithic, which remains problematic in its definition. It has only been identified in South-Eastern Albania, at Maliq in the Korçë basin. It is represented by Maliq phase II and shows a fine grey or grey-black pottery with rich decoration (incised, painted, encrusted and in relief; Fig. 17.5). For this phase, parallels were found in the Balkan area and also in Thessaly with the Rachmani group, but

they are not very convincing.³ Also, considering its stratigraphic position, the levels belonging to phase II have not been found above those of phase I but in sectors where phase I is not represented.⁴ This means that there is no stratigraphic relationship between phase I and II even if the excavator said that a layer whose features have some similarities with the Maliq IIb phase was identified immediately above Maliq I levels.⁵ One can wonder, then, if this phase really belongs to the Eneolithic.

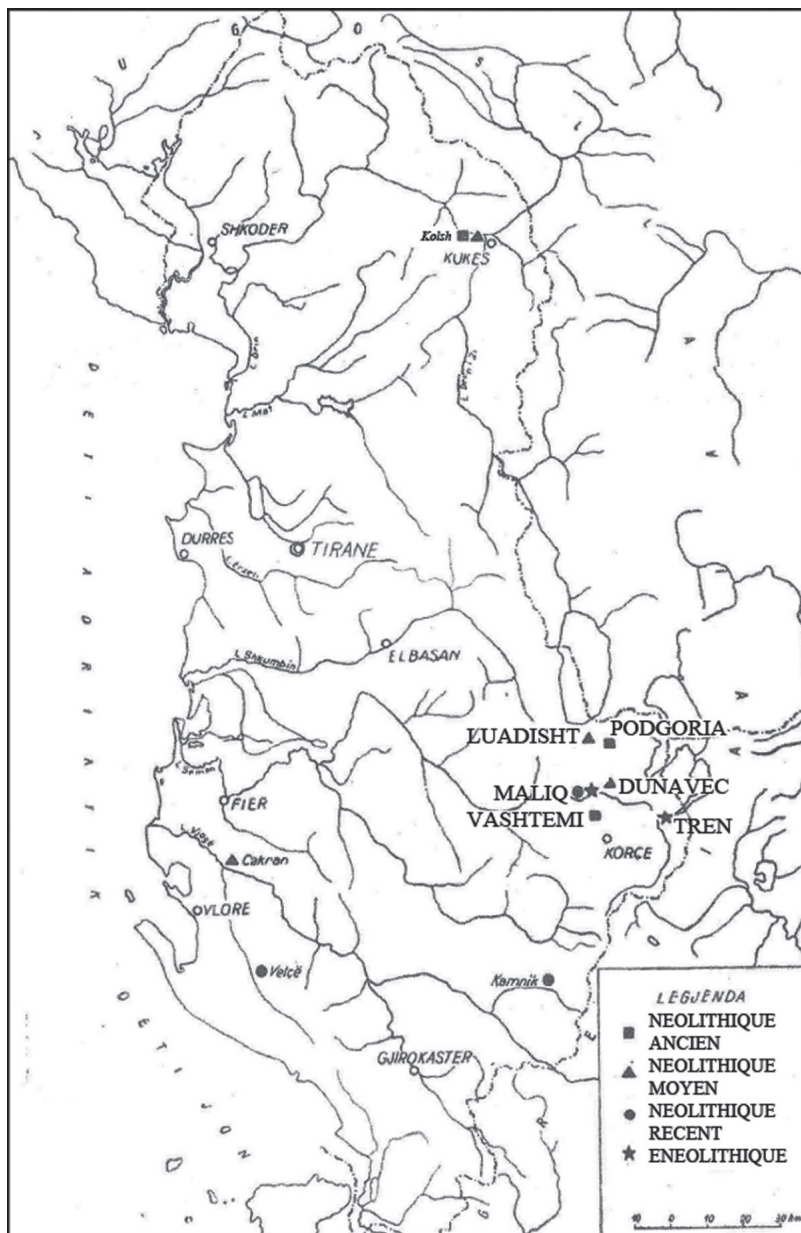


Figure 17.1. Map of the Korçë basin (from Prendi 1976, fig. 1).

Radiocarbon dating in Albania

In 1996, the first radiocarbon dating was precisely performed on a

Maliq II level, in this “undefined” Eneolithic phase.⁶ A single measured date for this phase at 5530 ± 110 BP, that is 4651–4055 cal BC, fits quite well with the end of Late Neolithic II, also called the Final Neolithic in Aegean terminology.

Additional radiocarbon dating was performed at the end of the 1990s with new data from the Konispol cave on the Adriatic coast;⁷ but again, just one date was obtained for the Late Neolithic at 5800 ± 120 BP, that is 4900–4300 cal BC. Both the Maliq and Konispol dates have the same problem: each is just a single, isolated date.

A new radiocarbon dating series came from the lakeside settlement of Sovjan some kilometres north of Maliq in the Korçë basin, excavated by a French-Albanian team from 1993 to 2006. The dates, however, concern the Early Neolithic and the Bronze Age levels.⁸ A new French-Albanian project at the Neolithic settlement at Kallamas on the west side of Great Prespa Lake offers new data regarding the Middle and Late Neolithic phases.

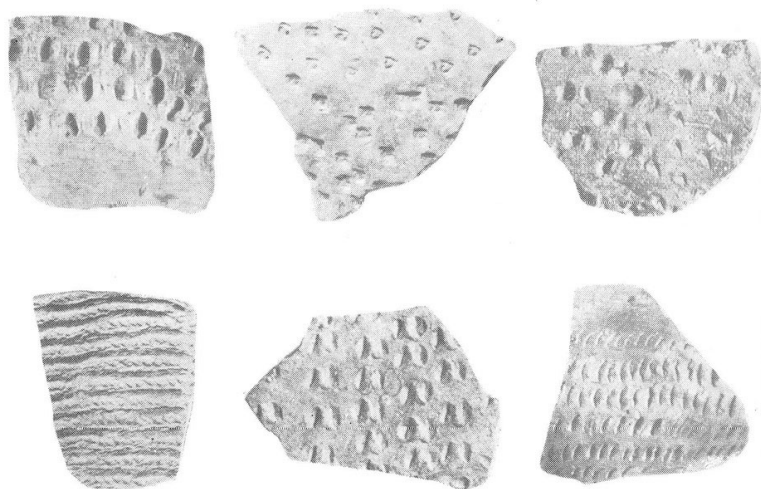


Figure 17.2. Early Neolithic impresso ware (from Prendi 1976, pl. III).

The Kallamas settlement

The Neolithic settlement is located on the Albanian side of Great

Prespa Lake (Fig. 17.6) near the modern village of Kallamas, three kilometres south of the Albanian–Former Yugoslav Republic of Macedonia (FYROM) frontier. It lies in a small plain that had been covered by the lake 30 years ago. The site was discovered by chance in 2007 thanks to the huge quantity of artefacts found on the surface: pottery, figurines, stone tools, *etc.* The site belongs to the flat-extended type – the centre is no more than 2 m higher than the surrounding land – and its exploration shows an occupation spreading over almost 4 ha.

Excavations began in 2008 with two main purposes: the study of the settlement in its paleo-environmental context; and the study of the stone tool workshop since the whole *chaîne opératoire* of making stone axes is represented on the site.

According to the artefacts found during excavation, the site presents two main sequences of occupation: the earlier goes back to the Middle Neolithic and the later to the Late Neolithic, following the Albanian terminology. The Middle Neolithic occupation, known as Kallamas phase III, is encountered mainly on the lakeside and the central area of the site. Although excavations were very limited, remains of habitation floors have been found yielding small complete pots, pieces of clay architecture and a lot of animal bones (Fig. 17.7). A preliminary study of the ceramic assemblage belonging to this level shows first of all a large proportion of black-burnished ware. The shapes are dominated by sharply angular, carinated profiles and biconical bodies (Fig. 17.8), sometimes marked by a horizontal line incised just above the carination. Also present were: collared-bowls, and bowls with a conical or semi-globular body; fruit-stands with a conical foot; large pithoi decorated with vertical barbotine strips on the lower part of the body; and a kind of “rhyton” with four legs was also found (Fig. 17.9). The common ways of decorating the pots are: applied “olive stone”, “coffee bean” or crescent bosses (Fig. 17.10); channelled or incised decoration resembling triangles filled with lines (Fig. 17.11) or dots, and sometimes with

white infill. Black-topped examples are also present but not as frequent as in the next levels of the sequence. All these elements are well known features of the Middle Neolithic pottery from Luadishte Podgoria⁹ and Dunavec,¹⁰ the two references for the Middle Neolithic in the Korçë basin.

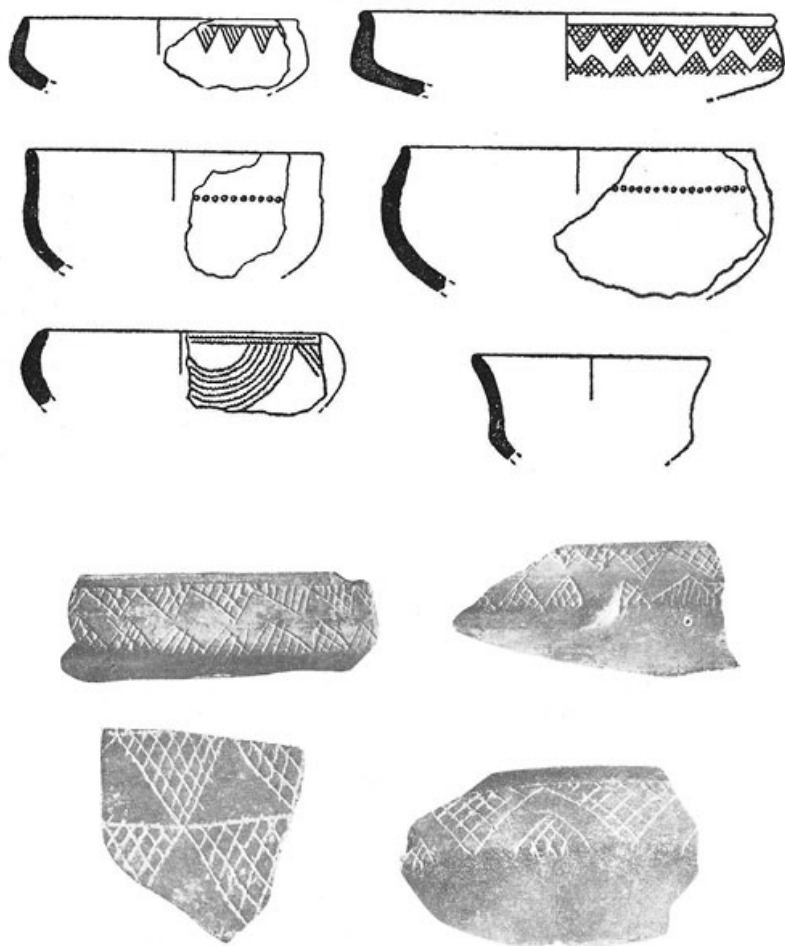


Figure 17.3. Middle Neolithic incised pottery with geometric pattern (adapted from Prendi 1976, pls IV and V).

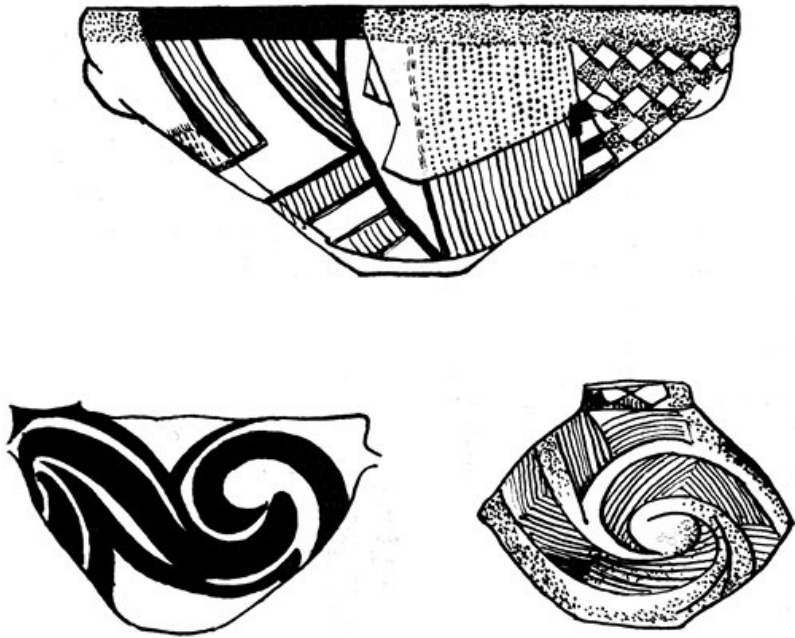


Figure 17.4. Late Neolithic painted ware (adapted from Lera 2002, fig. 8).

The Late Neolithic occupation is divided into two phases, Kallamas I (later one) and Kallamas II (earlier), in accordance with the stratigraphic data recorded in the main trench. Spatially, it is located from the centre to the north of the site. Habitation remains consist mostly of postholes, clay architectural elements and remains of domestic ovens associated with floor levels that include pots, bones, stone tools and animal refuse (Fig. 17.12). The pottery of phases I and II is dominated by a red rose monochrome coarse ware but the grey-black burnished ware is still present. Shapes often found are: biconical bowls with black topped decoration; large open shapes with fenestrated foot (Fig. 17.13); collared jars; and large pots with spherical body and handles below the rim. The decoration encountered belongs to various types: incisions such as incised strips filled with dots (Fig. 17.14); impressed and plastic

decoration such as cylindrical buttons different from those attested in the Middle Neolithic ceramics. It is interesting to notice that painted pottery remains are very rare; just a few sherds have been collected. All these elements find very close parallels in the Late Neolithic ceramics of Dersnik in the Korçë basin¹¹ but they appear quite distinct from those observed on the Late Neolithic pottery of Maliq I. This is not surprising because the Late Neolithic of Dersnik should be an earlier phase of the period. Also, no parallels appear with the pottery of Dimini classical style, which finds well attested parallels with the pottery of Maliq I.¹²

The first series of radiocarbon dates allows preliminary conclusions regarding the absolute chronology of Kallamas phase I and III; further dating is currently being conducted for phase II and again III. Radiocarbon measurements have been done on charcoal samples using the AMS method in the Lyon laboratory.

Dates for Kallamas phase I belong to the Late Neolithic (in Albanian terminology), as all fit in the first half of the 5th millennium, between 4800 and 4500 cal BC; these samples concern two successive layers, Ic and Ib, in the stratigraphy of the same trench. In terms of synchronism with North Aegean chronology, it places this occupation in the beginning of the Late Neolithic II.

More interesting are the results obtained for the earlier occupation level of the site, Kallamas III, which, based on the pottery, belongs to the Middle Neolithic according to Albanian chronology. Again the samples come from the same trench, from a floor layer. All dates fit in the second half of the 6th millennium, between 5400 and 5200 cal. BC. First, it confirms that this occupation phase is earlier by six or seven centuries than the later phase of Kallamas. But it also shows a more probable synchronism with the early phase of the Aegean Late Neolithic, that is Late Neolithic I, rather than with the Aegean Middle Neolithic. Some scholars had already noticed this: F. Prendi first compared the ceramics from Luadisht and Dunavec to those of the “Dimini

Tsangli phase” as he called it then;¹³ on the other hand, he also compared the same assemblage to the later phase of Starčevo, which belongs to the end of the Aegean Middle Neolithic.¹⁴

Conclusions

To conclude, absolute dates obtained for the Albanian Middle and Late Neolithic at Kallamas allow us to propose a more convincing synchronism with North Aegean chronology than that based on ceramic parallels. Nevertheless, some uncertainties still remain. This is the case, notably, for the chronological position of Kallamas phase I and II; according to absolute radiocarbon dating, the Kallamas phase I occupation is contemporary with the North Aegean Late Neolithic II which means, in terms of pottery groups, with the Otzaki and Dimini classical phase. But, as we saw before, no close parallels are visible between Kallamas I and II and the Dimini classical group (the main difference is the paucity of painted ware at Kallamas) while the parallels are obvious for the Late Neolithic pottery of the Maliq-Kamnik culture. Differences or idiosyncrasies in the ceramic assemblage of all the Late Neolithic sites in South-Eastern Albania can, then, be interpreted in one of two ways: as chronological markers or as regional markers. Since we are dealing with old excavations (Dunavec, Maliq, Dersnik, *etc.*), it is not impossible to imagine that distinct layers of occupation were not noticed in the stratigraphy, and consequentially chronological phases remained invisible. More probably, these differences in pottery result both from chronological diversity as well as regional particularisms.

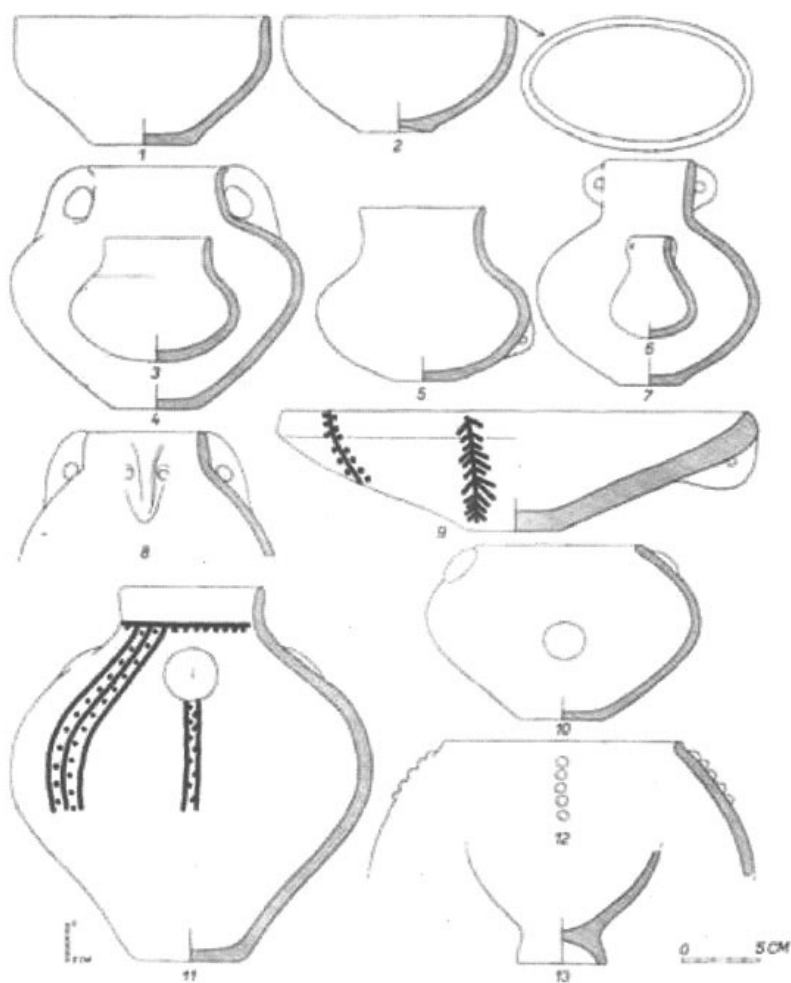


Figure 17.5. Eneolithic decorated ware (from Prendi 1982b, pl. I.)

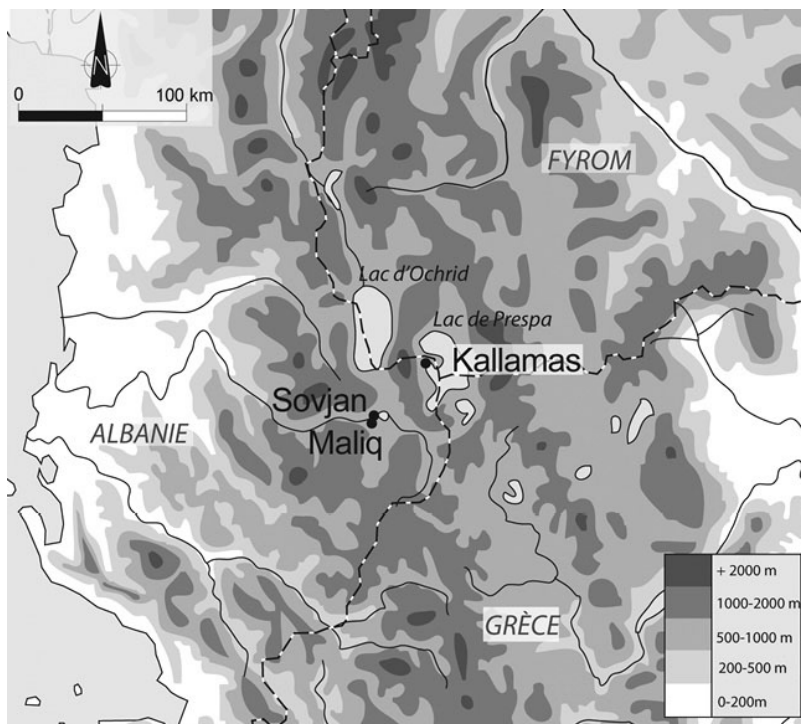


Figure 17.6. Localisation of the Kallamas Neolithic settlement in the south Balkans (map adapted from Treuil et al. 2008, carte II).



Figure 17.7. Kallamas, trench D: remains of MN floor habitation (cliché EfA).



Figure 17.8. Kallamas, MN black-burnished carinated ware (cliché EfA).



Figure 17.9. Kallamas, MN pithos decorated with vertical barbotine strips (cliché EfA).



Figure 17.10. Kallamas, MN pot with relief decoration (cliché EfA).



Figure 17.11. Kallamas, MN pot with incised decoration (cliché EfA).

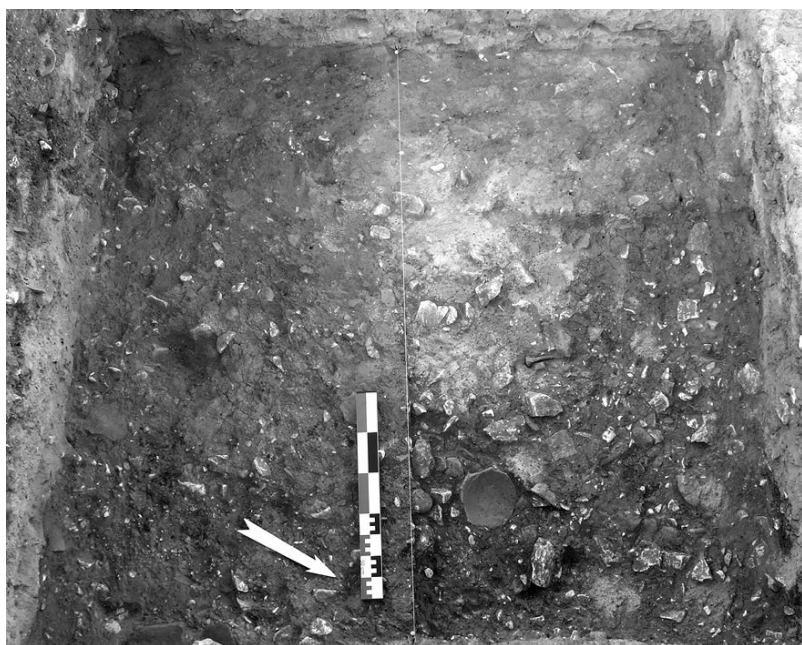


Figure 17.12. Kallamas, trench C: remains of LN floor habitation (cliché EfA).



Figure 17.13. Kallamas, LN pot with fenestrated foot (cliché EfA).

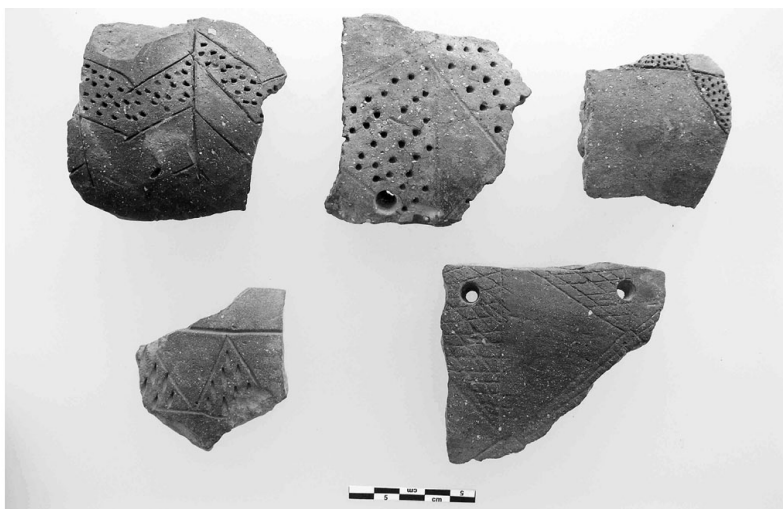


Figure 17.14. Kallamas, LN ware decorated with incised strips filled

with dots (cliché EfA).

Finally, these absolute dates will enable us to set local sequences into a larger chronological framework without having to rely on often approximate typological comparisons. This should place inter-regional comparisons on safer ground. Further radiocarbon dating and further studies on pottery and other categories of artefacts will then help to complete and clarify the absolute chronology of the end of the Albanian Neolithic.

Notes

- 1 Prendi 1966, 256.
- 2 Prendi 1972; Prendi 1976; Prendi 1990; Prendi and Andrea 1981.
- 3 Treuil 1983, 84.
- 4 Prendi 1966, 257.
- 5 Prendi 1966, 256.
- 6 Guilaine and Prendi 1991.
- 7 Korkuti *et al.* 1996.
- 8 Lera *et al.* 2009.
- 9 Lera 1983, 58–62; Prendi and Andrea 1981, 24–7.
- 10 Korkuti 1975.
- 11 Lera 1988.
- 12 Prendi 1976, 66.
- 13 Prendi 1976, 59.
- 14 Prendi 1982a, 198.

Part III

North Greece and Thessaly

The chronological and social dimensions of
the Late Neolithic I–II and the Late
Neolithic–Early Bronze Age transitions in a
long-lived settlement in Northern Greece
(Dikili Tash, Kavala district)

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Chryssanthaki, Dimitra Malamidou and René Treuil*

Introduction

Dikili Tash is a settlement with one of the longest occupational sequences in the Aegean and the Balkans (*ca.* 6400–1100 cal BC, leaving aside the historical periods), and also one of those most investigated.¹ The greatest part of the excavated deposits belongs however to the “Later Neolithic stages”, as defined by this volume, *i.e.* to the years stretching between roughly 5000–3000 cal BC.² The accumulated evidence allows us to follow, over the long-term, the continuities and the discontinuities that affect the settlement’s life and consider their possible significance. In this paper, we discuss more specifically two transitional periods: the first from the Late Neolithic I to the Late Neolithic II period,³ and the second from the Late Neolithic II (Chalcolithic) to the Early Bronze Age. Three aspects are given particular emphasis:

- (a) the settlement's development and spatial organisation, considered a sign of social structure;
- (b) the continuities or changes in some of the crafts;
- (c) the absolute chronology.

Concerning this last point, it should be remembered that Dikili Tash is one of the Southern European sites with the greatest number of absolute dates. Indeed, until the end of 2013, we encountered no less than 108 dates, 99 of which were radiocarbon⁴ and 9 were obtained with the method of thermoluminescence.⁵

The Late Neolithic I–Late Neolithic II transition

From the various works carried out so far (*i.e.* excavation properly speaking, but also core drillings), it appears that the LN I settlement already extended over the major part of the present tell surface, and the LN II layers were installed on top of it (Fig. 18.1). The only case where we are sure that there is an expansion in the LN II period is at the southern foot of the tell (sector 2, see below). This expansion does not seem, however, to compensate (at least based on the information gathered so far) for any loss of built space on the other sides of the tell. Two sectors among those investigated with proper excavation provide evidence regarding the LN I–LN II succession (Fig. 18.2: sectors B2 and V).

The first LN II occupation levels either directly overlay the last LN I levels,⁶ or cut into them.⁷ At no place have we seen any clear abandonment layer, although in one of the squares of sector B2 (square X29) a 30–40 cm thick “heterogeneous layer with only some rare sherds, among which the first LNII specimens” is reported.⁸ Nevertheless, the existence of a hiatus has been suggested by the study of the pottery assemblages in both sectors where evidence for the two periods was documented. We seem, indeed, to pass in all cases from a fully developed typical LN I assemblage (with black-topped and fine painted wares, and

similar) to a fully developed LN II assemblage (with graphite-painted, incised and black-on-red wares) without any “hybridization” stage, like the one attested for instance in the neighbouring Struma valley (Promachon, Strumsko).⁹

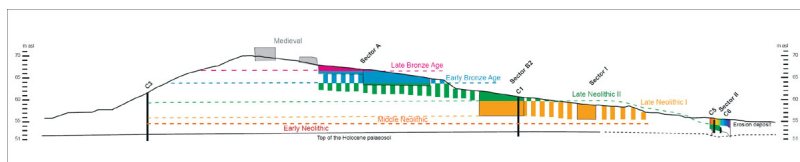


Figure 18.1. Schematic section of the Dikili Tash tell: current state of knowledge, integrating the results of work after 2008.

In fact, it appears today, in light of further examination of the material and the contexts, that we do have some signs of this early transformative stage at Dikili Tash that had gone unnoticed in previous works. Thus, one of the last LN I levels in sector B2 (square X30, level 11)¹⁰ contained, next to some typical advanced LN I specimens (e.g. a black-topped bowl with white- and graphite-painted decoration,¹¹ a dark-on-light painted globular jar),¹² several vessels that stand typologically between the current and the later productions. Among them we can mention a fragmented collared pot with black-on-red decoration (Fig. 18.3),¹³ the shape of which (slightly carinated belly with small applied coils on it) is still very much LN I, but with decoration (large curved bands covering the entire surface) that clearly announces the later so-called “Galepsos-style.”¹⁴ By no means can it be considered intrusive from later deposits, for similar vessels are totally absent from the following purely LN II levels. Moreover, the context of discovery allows for the assumption that we are in a relatively undisturbed habitation unit, with several complete or almost complete vessels displayed close to a domestic oven.¹⁵ Also from the same area comes a big ovoid, necked jar with “white-painted” (possibly burned graphite) decoration:¹⁶ again, the shape is perfectly compatible with that of other LN I jars,¹⁷ but the decoration seems strange to the repertoire of this period.¹⁸

Another possible example of a “transitional” level is taken from level V/Est/2 in sector V, which, as we said, directly overlay the last purely LN I level (V/Est/3) over a very small area, framed by two rows of postholes meeting at a right angle.¹⁹ The *in situ* vessels are all undecorated with LN II-looking shapes (Fig. 18.4a–b). A fragmentary vessel with typical LN I shape (carinated collared pot) and graphite-painted decoration, the motifs of which, however, are not yet those of the typical LN II graphite-painted productions (Fig. 18.5), could be associated with them.²⁰ But the proximity of this layer to the surface prevents us from forming a clear image and from following the sequence further.

Unfortunately, we have no ¹⁴C dates from the “transitional” LN I–II levels themselves, but we can circumscribe their chronological position thanks to the available dates from those preceding and following (Fig. 18.6). In sector B2, we have one date from level 13 in square X30 (*i.e.* lower in the sequence than level 11), and three more dates from the adjacent square X29: two from level 13, estimated to be equivalent to level X30-11,²¹ and one from level 12, which is the first definitely attributed to LN II.²² All four dates have very large statistical errors (± 160 years BP), giving calendar dates with huge intervals after calibration. They line up, however, sequentially, *i.e.* following the stratigraphical order. The dates from LN I layers look too old compared to other dates from Dikili Tash (below) as well as to those from other sites, but the fact that they come from charcoal fragments (possibly from old or reused timber) might provide an explanation for that.

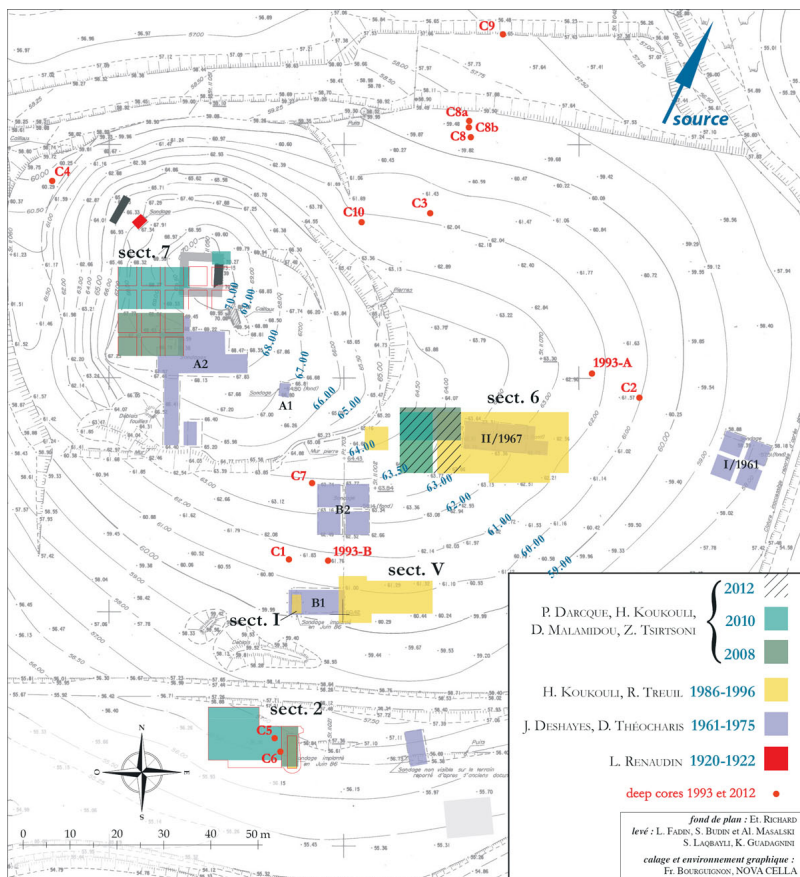


Figure 18.2. Topographical plan.

The ^{14}C dates from sector V are more precise (*i.e.* have much smaller errors, $\pm 20\text{--}35$ years BP) and are closer to the events, since they come mostly from short-lived samples collected from *in situ* concentrations.²³ Therefore, we can rely on them better. The last purely LN I level V/Est/3, on top of which the aforementioned level V/Est/2 is established, provides a *terminus post quem* for the latter at 5948 ± 25 BP, *i.e.* 4906–4744 cal BC.²⁴ On the other hand the first – and unique in this sector – purely LN II level V/Est/1, which cuts into level V/Est/3,²⁵ recently provided a date from a bone sample at 5670 ± 35 BP, *i.e.* 4604–4375 cal BC (Lyon-8855/SacA-27823).²⁶ Although there is no direct contact between levels

V/Est/1 and V/Est/2, it seems reasonable to assume that V/Est/2 is earlier than V/Est/1, an assumption supported also by the pottery assemblage of V/Est/1, which belongs to an advanced stage of LN II.²⁷ Bayesian analysis (with minimal constraints, *i.e.* simple phasing, without any boundaries between the LN phases: [Fig. 18.6](#)) allows for the further reduction of the interval allocated to the development of the early stage, as it suggests a more probable date distribution for Lyon-8855 between *ca.* 4680 and 4500 cal BC. This would mean that the transition and the early stages of the LN II at Dikili Tash²⁸ would take place in the years between 4800–4650 cal BC (*OxCal* gives 4821–4643 at 95.4%, modelled). The possibility of a break in occupation still exists, but if this was the case, it would have been very short, provoking no discontinuity in the settlement's overall development.



Figure 18.3. Fragmented pot with “hybrid” black-on-red painted decoration from level X30-11 (photo © Ph. Collet/EFA).

Several other elements go in the same direction. Thus, in terms of house arrangement and construction techniques, the habitation units of the LN II period share many features with those of LN I,²⁹ and although we have no complete LN I plan, we can establish a technical, morphological, and functional continuity between *e.g.* the house of level V/Ouest/3 and any of the rooms of sector 6

House 4 (Fig. 18.7a–b), or House 1, currently under investigation (see below).

Changes in the course of the Late Neolithic II period

Some developments are visible in the spatial organisation at an advanced stage of the period. The first is the expansion of the settlement, which takes place around 4520–4362 cal BC. This date comes from a small charcoal sample collected in an oven (locus 2-002, date Lyon-6011) that marks the first more-or-less *in situ* building level at the southern foot of the tell.³⁰ Indeed, sedimentological analysis has shown that all the deposits underneath are colluvia, accumulated here during the first 2000 years of existence of the growing tell.³¹ The suggested chronology is in agreement with the presence of several “mature” graphite- and black-on-red painted pottery fragments around the oven, as well as with the presence of a four-legged vessel with incised and red-crusted decoration among the debris of another oven (locus 2-014) found a few metres away, and which clearly belongs to the same building phase.³²

This expansion could be a response to a certain lack of space, as suggested also from other indices. As we have said, among the last LN I levels in sector V we have at least one well-attested outdoor space, measuring *ca.* 30 sq m, equipped with two (or maybe three) hearths and with several bins made of raw clay, most of which were still full of grain at the moment of destruction: it seems to be a sort of courtyard between houses.³³ Nothing similar has been established so far for the LN II period, although we do have evidence for the existence of outdoor areas, *e.g.* to the south and to the north of House 1 in sector 6.³⁴ In this sector the houses seem to be very close to each other and separated only by narrow lanes.³⁵ On the other hand, we should keep in mind that these houses date from the end of the LN II (see below), and what we see there was not necessarily the case earlier in the same

period.

The LN II expansion might also imply a stronger division of space, with the creation of terraces and/or the construction of an outer wall. We know indeed that around 4200 cal BC a massive stone structure collapsed at the southern foot of the tell, under the effect of erosion. This structure was originally standing a few metres higher in the slope, and was therefore definitely built before this date (Fig. 18.8). According to all the evidence, this was part of a wall or system of walls that surrounded either part³⁶ or the whole settlement (like the stone enclosures attested at Dimini, Palioskala, Mandalo, etc).³⁷ The majority of these parallels date in the later stages of the Late Neolithic (advanced 5th millennium BC), but we know that such constructions existed in Sesklo as early as the Middle Neolithic.³⁸ Theoretically, therefore, we cannot exclude that the construction delimitating or protecting the settlement was already a work of the 6th or early 5th millennium, especially if we keep in mind that the main built area was fixed at this date.

Finally, it seems that during the course of the LN II period, a certain change of scale in some crafts or resource management strategies is attested. We can take as an example the production of ornaments from a variety of materials, well-attested now in House 1 of sector 6.³⁹ Another example would be the differences in the use and storage of plant resources, *e.g.* by comparing the quantities of plant resources in the house of V/Ouest/3 and in the houses of sector 6 (even if this kind of ‘difference’ could be altogether accidental, depending much on the time of year when the destruction took place).⁴⁰

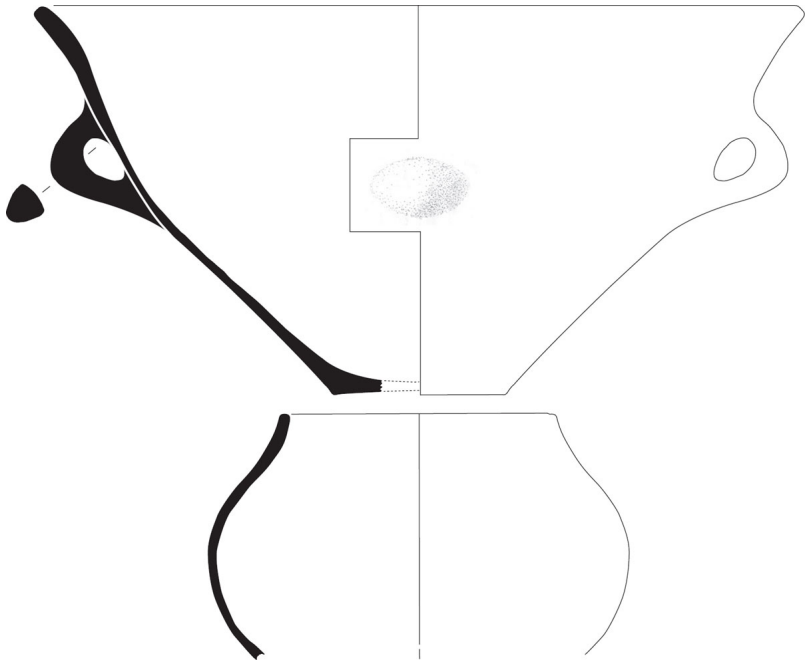


Figure 18.4. Vessels found in situ in level V/Est/2: a: large open bowl with everted rim (diam. 43 cm); b: globular pot (rim diam. 15.4 cm); (drawings by G. Andreadis and Ch. Romanidis).

The Late Neolithic II–Early Bronze Age transition⁴¹

Evidence regarding the transition from the Late Neolithic II to the Early Bronze Age comes from three sectors: two are located on the main body of the tell and display EBA deposits in primary position (Fig. 18.2: sectors A2 and 6), whereas the third (sector 2) is located at the southern foot of the tell with deposits in secondary position due to erosion.⁴²

In the first two sectors, no stratigraphical hiatus was detected between the deposits of the two periods until 2013.⁴³ The first EBA level penetrates the underlying LN II destruction layer (Fig. 18.9), giving the (false) impression that there is no break in the occupation. Yet there is a chronological break, and moreover an important one. The results of the latest ¹⁴C dates from sector 6 indeed confirm and make more precise those produced during the

previous programme in the same area: the destruction of the houses in sector 6 is to be placed in the years around 4300/4260 cal BC, whereas the first EBA layer dates from *ca.* 3300/3000 cal BC (Fig. 18.6).⁴⁴ One millennium is missing – some would say *the* millennium, since a similar situation is attested in many other sites in the broader Balkan area, with the years in between being altogether very poorly represented in the absolute dates sequence.⁴⁵

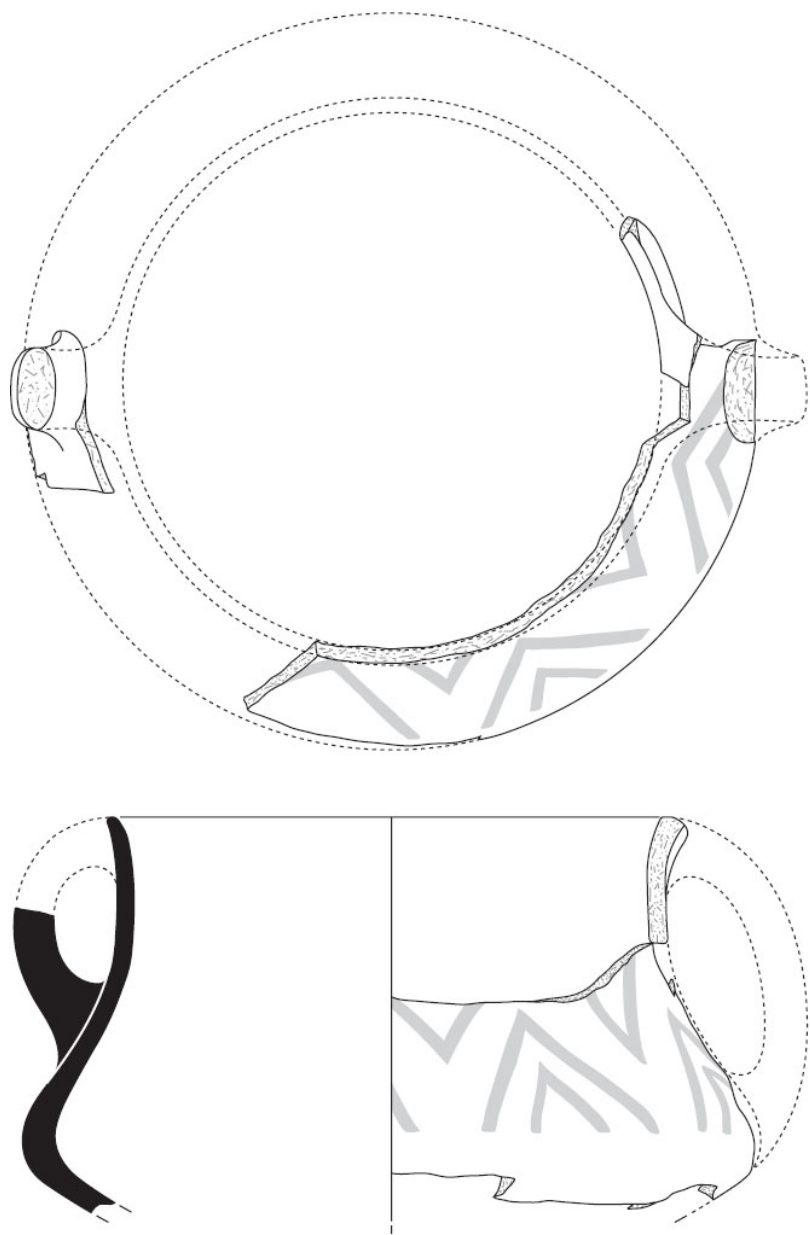


Figure 18.5. Fragmented collared pot with graphite-painted decoration from level V/Est/2(?); max. diam. 19 cm (drawing by Fr. Bourguignon).

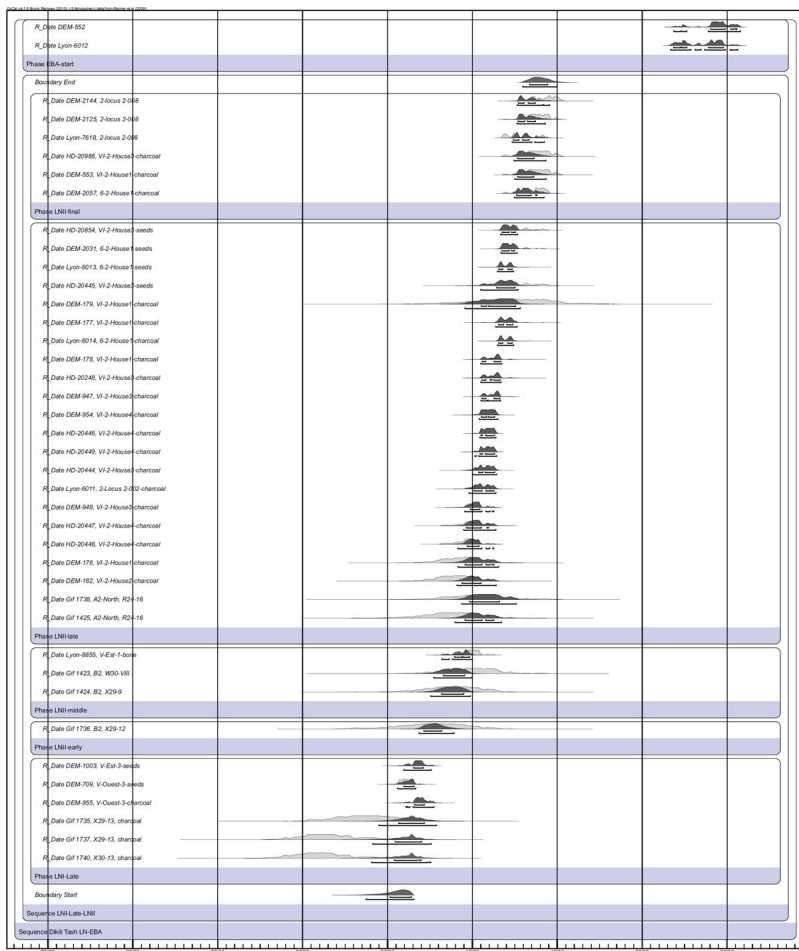


Figure 18.6. Modelled OxCal diagram with the sequence between Late Neolithic I and the start of the Early Bronze Age (on-line version 4.1.6, using the IntCal09 calibration curve).

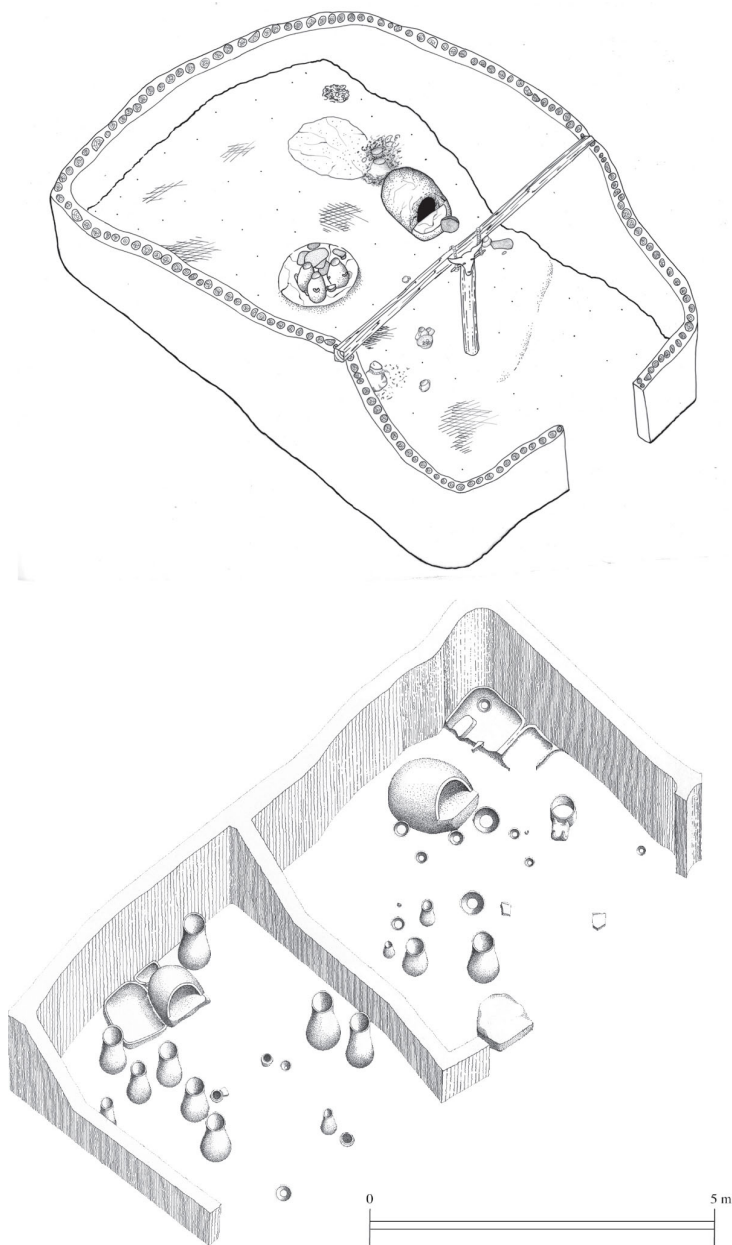


Figure 18.7. Reconstructed interiors from: a: level V/Ouest/3, end of LN I (drawing P. Pugsley); b: sector 6 House 4, end of LN II (drawing by Ch. Romanidis).



Figure 18.8. Fallen Neolithic stone wall in sector 2 (locus 2-001) (photo by P. Darcque).

At Dikili Tash though, there is evidence that the site remained occupied for another century or more after the destruction of the houses in sector 6. Indeed, some of the dates from charcoals collected from above the destruction level of the LN II houses give results contemporary or slightly later than those obtained from the

charred grains collected in the houses themselves (Fig. 18.6: “phase LN II-final”, dates DEM-2057, DEM-553, HD-20986). This could suggest that there existed here another level, which has been very heavily eroded and is not easily distinguished from the underlying house destruction layer. Evidence from pottery supports this hypothesis, because we do have some material in these deposits that is not represented inside the houses.⁴⁶

All this is even more clearly visible in sector 2. As said before, the remains of the collapsed Neolithic stone wall that have been brought down by erosion covered the burnt debris of the outer habitation zone here, which in the meantime had stopped being used.⁴⁷ Three charcoal samples from the colluvia that include the fallen stones (locus 2-008) give results between 4200–4000 cal BC (Fig. 18.6: “phase LN II-final”, Lyon-7618, DEM-2125, DEM-2144). This means that occupation layers of those years had existed in primary position somewhere higher on the slope, thus confirming the observations made in sector 6.

What follows is very interesting, too. The colluvia containing the stones are stabilised soon after and a palaeosol was formed in this area. This is a true abandonment layer. Although its thickness varies considerably according to the slope, the duration of the pedogenesis process (*i.e.* of the abandonment) must have been quite long. When erosion is reactivated again at a given moment, it brings down a new layer of stones and a new layer of colluvia, which contain material dated to about 4680–4500 cal BC;⁴⁸ this means that, between the two events, levels dating to an earlier stage of the LN II period had become exposed on the southern slope of the tell. We suppose that this second layer of erosion is connected with the re-settling of the tell and the extensive clearing undertaken by the EBA settlers in the years around 3300–3000 cal BC.



Figure 18.9. Sector 6, EBA pits penetrating the destruction layer of LN II House 1 (note the remains of the house's oven 6-015, bottom right) (photo by Chr. Gaston).

Conclusions

The results of recent research summarised in the present paper can be used to revise or confirm some of the statements made in previous years about the development of the Late Neolithic settlement at Dikili Tash:

1. Contrary to what was claimed in previous publications, it appears today that the Late Neolithic II period at Dikili Tash was a continuation of the preceding Late Neolithic I, although a short gap in occupation cannot be fully excluded. No particular change is seen in building techniques or the arrangement of houses in the beginning of the period. On the contrary, some relatively important changes are seen during its advanced stages (after 4600/4500 cal BC), which could indicate an increase in population. The latter is also suggested by the intensification of some craft-making activities and by a

larger scale of production and/or management of resources, best attested in the years around 4300/4200 cal BC.

2. The Late Neolithic II period at Dikili Tash would have lasted between 500 and 800 years altogether, from approximately 4800/4700 to 4200/4000 cal BC. But this time span was not necessarily subdivided into three stages of equal duration. It seems that the early formative stages would have been quite rapid, given that towards 4600/4500 cal BC the material culture (e.g. from level V/Est/1, or the building level in sector 2) displays already most of the features attributed to the developed horizons of the local sequence (rare “Maritsa-style” pottery, predominance of graphite-painted wares and wares with incised and red-crusted decoration, “Galepsos” black-on-red painted, etc.).⁴⁹ The majority of these features have parallels in phase V of the neighbouring regional sequence of Karanovo and other related phenomena (e.g. horizons I to V from Slatino in the Upper Struma valley), corresponding to the “Middle Chalcolithic” period in Bulgarian terms. As we said, some of the most significant changes in the scale and arrangement of buildings, and possibly in the economy at Dikili Tash are also seen at this moment, not before.

3. This picture is in close agreement with the recent results from other sites in the Balkans, which also suggest that the transformations reflecting the early stages of the period (Early and Middle Chalcolithic) occurred rapidly, and that consequently, changes corresponding to the late stages (the phenomena related to the so-called “Kodzhadermen-Gumelnitsa-Karanovo VI complex”) were established much earlier than was believed until recently.⁵⁰ We would thus have a rapid evolution in the beginning, leading to the transformation of some of the previous Neolithic practices possibly as early as 4600 cal BC, followed by a longer phase of stability – the mature Late Chalcolithic in Bulgarian terms, which might actually correspond also to the start of the Greek

Final Neolithic/Chalcolithic.⁵¹

4. From *ca.* 4600/4500 to 4300/4200 cal BC, there is plenty of time for further developments in the Dikili Tash pottery sequence, and of course in other fields as well: the parallels are to be sought among the features usually ascribed to the phase Karanovo VI, as shown by many ceramic vessels and other finds discovered in the houses of sector 6 (Fig. 18.10).⁵² This goes against the hypothesis, advanced in previous years by J.-P. Demoule, that the Dikili Tash sequence ended before that of neighbouring Sitagroi and before the majority of the Late Chalcolithic tells in Bulgaria.⁵³ In fact, according to the latest radiocarbon evidence, the majority of the latter also end – or seem to end – in the years around 4300/4200 cal BC.⁵⁴

5. It is clear that we have a gap in the LN II-EBA transition, which is stratigraphically “invisible” on the main body of the tell⁵⁵ but well attested on the periphery. Its duration is not exactly the one deduced from the dates obtained in the last well-preserved destruction layer (*i.e.* the level of the houses in sector 6), but that attested by archaeologically less visible events (*i.e.* the first erosive event in sector 2, the possible re-occupation of sector 6). This is important when we discuss the synchronous or not character of the abandonments on a regional scale. It is also very important when discussing the possible causes of the abandonment: it gives indeed a certain time-depth to the events, which goes against the idea of an abrupt ending.

Two questions come naturally to mind once we establish that the site was abandoned for almost 1000 years: Why did its residents leave? Where did they go? The first is certainly the most tantalising: why do people abandon a site that had been occupied, apparently successfully and more-or-less continuously, for almost 2000 years? Let us say it right away: we do not know. What we do know is that they were definitely not victims of an invasion or a devastating natural catastrophe.⁵⁶ An explanation involving

environmental changes cannot be excluded, but it should be considered part of a relatively long process and not an abrupt event.⁵⁷ We are also unable, for the moment, to indicate the place (or the places) to which the inhabitants that left Dikili Tash would have moved – or any of the other abandoned Late Neolithic/Chalcolithic settlements in the area. But this situation could be simply the result of taphonomical factors, and might change at any moment, as it did in recent years for so many other “gaps” in our archaeological knowledge.⁵⁸

Whatever the case, the EBA settlers seem to be disconnected from previous developments. This is obvious in many domains of the material culture, but also in the general arrangement of the settlement and the building techniques. For instance, there is no evidence in EBA I or in the next phases for any terrace walls or for an outer circuit wall like the one identified for the Neolithic settlement. Second, in none of the levels excavated so far have we found any rooms resembling those of the Late Neolithic I and II: individual structures (ovens, platforms, *etc.*) are present, as well as postholes and daub fragments, but no clear house interior has been identified. Many of the posts are fixed inside big pits filled with stones (see for instance [Fig. 18.9](#): loci 6-017 and 6-018) – a practice unknown in the Late Neolithic.⁵⁹ The only elements that loosely connect the two periods are some affinities in pottery, the importance of which, however, should not be overlooked. Indeed, these affinities concern material associated with the very last stage of LN II, not before (*i.e.* not in the houses of sector 6 but in the presumed later level and in the associated colluvia in sector 2). This could mean that some of the features found in the earliest EBA pottery (*e.g.* grooved decoration, “heavy” burnishing, *etc.*)⁶⁰ were introduced in the last stage of the LN II and moved, together with the last inhabitants, to a new place – maybe not very far from the original site – where they were kept and transformed over the next centuries. Their appearance in EBA Dikili Tash should by no means be considered a “return,” but could suggest after all a

relationship between the late 5th and the late 4th millennium BC phenomena.



Figure 18.10. Two of the ca. fifty ceramic vessels found in situ in

House 1: a: square bowl with incised and red-crusted decoration, height 6.8 cm; b: graphite-painted amphora height 21 cm (drawings by R. Douaud).

Notes

1 The site indeed counts more than fifty years of research, conducted in the frame of systematic long-term projects, carried out under the auspices of the Archaeological Society at Athens and the French School at Athens. For presentation of the site and works, see Darcque *et al.* 2007; Darcque and Tsirtsoni 2010; Koukouli-Chryssanthaki and Romiopoulou 1992; Koukouli-Chryssanthaki and Treuil (ed.) 2008; Lespez *et al.* 2013; Treuil (ed.) 1992; and also the website: www.dikili-tash.fr (with a full up-to-date bibliography).

2 We wish to thank the organisers of the Conference for including this paper among those presented in Athens, and also for their patience in the late submission of the final manuscript.

3 For the differences in the terminology used to describe this period, see Tsirtsoni 2010, and also Tsirtsoni 2016 (ed.). We use the term “Late Neolithic I” here to describe the years until *ca.* 4800 BC (*cf.* Andreou *et al.* 1996), and the term “Late Neolithic II” to describe the remaining centuries until the end of the “Neolithic” sequence. Therefore, we make no *a priori* distinction between a properly “Late Neolithic II” stage ending at *ca.* 4500 BC and a later “Final Neolithic or Chalcolithic” stage, covering the centuries until the advent of the EBA. The term “Chalcolithic” is used in this paper in the sense that it is given in neighbouring Bulgaria (see among others, Boyadzhiev 1995; Boyadzhiev and Terzijska-Ignatova (eds) 2011; Todorova 1995), *i.e.* as perfectly equivalent to our “Late Neolithic II”.

4 From different laboratories: Gif-sur-Yvette, Lyon and Saclay in France, Demokritos in Greece, Heidelberg in Germany. The ¹⁴C dates from the first research program (1961–1975) are published in Treuil (ed.) 1992, 33–6. Those of the second research program (1986–1996) have been discussed in a number of reports, among which: Darcque *et al.* 2007; Darcque and Tsirtsoni 2010; Darcque *et al.* 2011, 198–9, and fig. 13; Koukouli-Chryssanthaki *et al.* 1996; and more thoroughly in Darcque *et al.* 2015; Maniatis *et al.* 2014.

The last two papers contain also some of the ¹⁴C dates from the third research program (after 2008). The majority of the last were realized in the frame of a broader research project funded by the French National Research Agency between 2007 and 2011 (ANR project “Balkans 4000”): they are fully published in Tsirtsoni (ed.) 2016. The dates from the core drillings have been presented separately in Lespez *et al.* 2013.

5 At the Laboratory of Bordeaux University, France; see Vartanian *et al.* 2001; Roque *et al.* 2002.

6 This is the case of levels 11–10 in sector B2 square X30 (Treuil (ed.) 1992, 23–4; pls 15, 18), and levels V/Est/2-V/Est/3 in sector V (Darcque *et al.* 2007, 253).

7 Levels V/Est/1-V/Est/3: see Darcque *et al.* 2007, 253; Darcque and Tsirtsoni 2010, 62–4, fig. 14; Darcque *et al.* 2011, 193–4, fig. 3.

8 Treuil (ed.) 1992, 23. Such layers might not necessarily reflect abandonment; they could also result from sediments accumulated in open areas between built spaces, like the one reconstructed in level V/Est/3 (the stratigraphic position of which is, by the way, similar to that of the presently discussed layer): Darcque and Tsirtsoni 2010, 62. See also below.

9 Demoule 2004, 178–9; Darcque *et al.* 2011, 193–5.

10 Commenge-Pellerin 2004, 45; Demoule 2004, 192, tab. 1.4.

11 Inv. nr. DT239: Commenge-Pellerin 2004, pl. 5:10; V:8a, 8b; and colour plate A:4.

12 Inv. nr. DT229: Commenge-Pellerin 2004, pl. 1:6; II:1; and colour plate A:1. See also Tsirtsoni 2000, 28 (fig. 3), 36.

13 Inv. nr. DT206. Discussed in Séfériadès 1983, 650–1 and fig. 18, who parallels it with some finds from Early Neolithic Gradeshnitsa (North-West Bulgaria). This parallel does not seem valid, neither from a typological nor from a chronological point of view. The vessel has not been included in the final publication (Commenge-Pellerin 2004).

14 Compare for instance the black-on-red painted pot DT150: Demoule 2004, pl. 18:2, XII:2, and colour pl. E:1. For the evolution of LN II black-on-red pottery in general, see also Malamidou 2005.

15 This oven had initially been interpreted as a pottery kiln, based precisely on this concentration of vessels, many of which show traces of severe burning (cracks, deformation, *etc.*): see Deshayes

1970, fig. 10; Deshayes 1973, 466; also Treuil (ed.) 1992, 43. These traces however are not the result of an excessive (first) firing, but of a secondary firing, frequently attested in Neolithic destruction layers (see full argumentation in Tsirtsoni 1999, 280-1). It should be noted that the particular pot DT206, as well as another undecorated globular pot (DT179, not included in the publication), were collected in the destruction layer that surmounted the oven and were apparently not in direct connection with the structure itself (as was the case of the carinated jar DT208 for instance).

16 Inv. nr. DT191: Commenge-Pellerin 2004, pl. VIII:1; and colour plate A:5. The entire ware has been described as “flammé” (Commenge-Pellerin 2004, 39–40).

17 See for instance the jar DT229 from the same layer (above, note 12), and several jars from levels V/Ouest/2 and V/Ouest/3 (Tsirtsoni 1997, 33; Tsirtsoni 2000, 28–30, 49, fig. 19). Notice in particular the position of the handles, slightly below the maximum diameter, and the alternation of horizontal and vertical handles.

18 The only other jar with painted decoration has a dark paint on light background, a category which is well-attested in LN I layers at Dikili Tash and at other sites (e.g. Sitagroi, Dimitra, etc.). White paint (as well as graphite) is known only from black-topped vessels (Commenge-Pellerin 2004, 36–7; Tsirtsoni 2000, 42–3). But see also right below, carinated pot from V/Est/3.

19 Koukouli-Chryssantaki *et al.* 1996, 687, fig. 4.

20 This vessel was obtained by mending fragments dispersed in the destruction layer, at the interface between the two levels V/Est/2 and V/Est/3. Its stratigraphic position is therefore more dubious. The low, somewhat squat shape of the body and the presence of two different handles are both found in a collared pot from another advanced LNI level (level V/Ouest/3, pot smashed under the fallen bucranium: Treuil and Darcque 1998, 3, fig. 1; illustrated in Tsirtsoni 1997, 31). The decoration with parallel chevrons recalls that found on some black-topped bowls of the same period (Tsirtsoni 1997, 30; also vessel DT239 mentioned above, note 11). Their combination is however unique for the moment.

21 It is very difficult to make straightforward connections between layers excavated in different squares (*cf.* Treuil (ed.) 1992, 19–20). What is meant here is that levels X29-13 and X30-11 are in the

same relative stratigraphic position (*i.e.* are the last of the “LN I” sequence at this part of the tell), and provide similar material.

22 Treuil (ed.) 1992, 25; Demoule 2004, 192, tab. 1.4. We have further dates from level 9 in the same square and level VIII in the neighbouring square W30.

23 For the contexts, see Darcque *et al.* 2007, 249–51.

24 All the radiocarbon dates are given calibrated at 2 sigmas (probability 95.4%).

25 Above, note 7.

26 This date is published here for the first time. It is taken from an animal bone collected inside a pit (locus 807/836) associated with this building level. Previous attempts to date bone samples from this level were unsuccessful, as the method was at its beginnings and the sampling was not done correctly: see Darcque *et al.* 2011, 195.

27 The pottery found here not only lacks “hybrid” features but looks advanced even with respect to the sequence proposed by J.-P. Demoule on the basis of the material from sector B2 (Demoule 2004, 98–9, tab. 1.4; 3.25); it would correspond more or less to his stage IIB.

28 We do not completely follow here the distinction proposed by J.-P. Demoule regarding sub-phases Dikili Tash IIA–IIC (*cf.* previous note), for there is evidence that their definition needs to be revised. We prefer to speak instead of early, middle and late stages. See also Darcque *et al.* 2011; Tsirtsoni 2016, 247–5, 287–8.

29 For the continuity in building techniques see Martinez 1999.

30 Darcque *et al.* 2008, 531–2, fig. 2; Darcque *et al.* 2009, 532–3, figs 2–3.

31 For details see Darcque *et al.* 2014.

32 See Ergon 2010; Darcque *et al.* 2015, 412, fig. 17.

33 Above, note 8. We do not know whether it was attached to only one household, or if it was shared among more (communal place), as suggested in particular by the number of hearths.

34 Darcque *et al.* 2012–2013, 758.

35 Darcque *et al.* 2011, 196, fig. 8; Koukouli-Chryssantaki *et al.* 1996, 690–4, figs 5–6.

36 This side faced the large neighbouring swamp and might have known some water problems already in the past: see Lespez *et al.* 2013, 37.

- 37 Papaefthymiou-Papanthimou and Pilali-Papasteriou 1996, 144; Toufexis 2006; Toufexis 2016 (the last with a detailed discussion about the possible function of such features); Tsountas 1908.
- 38 Even if their “monumental” and potentially defensive character is today rejected: see Kotsakis 1996, 52.
- 39 See Darcque *et al.* 2012–2013, 756–8; *Ergon* 2012, 60, fig. 49; Darcque *et al.* forthcoming. Ornaments, and even evidence for ornament-making, were found of course in earlier layers, but not in such quantities, *e.g.* necklace from level V/Est/1: (Darcque and Tsirtsoni 2010, 63, fig. 14); an entire spondylus valve from level V/Ouest/3, of LN I date (Darcque *et al.* 2007, 249; Darcque and Tsirtsoni 2010, 60).
- 40 For the remarkable quantities of charred plant remains retrieved in particular from House 1, see Darcque *et al.* 2009; Darcque *et al.* 2012–2013; Darcque *et al.* 2010; Valamoti *et al.* 2015; Valamoti 2015.
- 41 This question has been treated quite extensively in several recent papers, especially Darcque *et al.* 2014, Darcque *et al.* 2015, and Tsirtsoni 2016. Here we deliver only the main points.
- 42 We exclude from discussion the sector I/1961, at the eastern foot of the tell, for the LN II remains have been only seen here at the bottom of a 1 × 2 m trench, and their nature is not clearly established; see Koukouli-Chryssanthaki and Romiopoulou 1992, 234.
- 43 The state presented here is the one given at the Athens Conference, in June 2013. The results of the 2013 excavation in sector 6 have changed several points, which are discussed in detail elsewhere: Darcque *et al.* 2014, 610–12; Tsirtsoni and Malamidou forthcoming.
- 44 Darcque *et al.* 2015; Maniatis *et al.* 2014; Tsirtsoni 2016.
- 45 See discussion in Tsirtsoni 2015; Tsirtsoni (ed.) 2016, 26–36.
- 46 Tsirtsoni 2016, fig. 27.
- 47 This is at least what the micromorphological analysis of the sediments suggests: see Darcque *et al.* 2014.
- 48 The relevant dates Lyon-7621 and Lyon-7619 are not shown in the diagram of Fig. 18.5 since they are not entering the “normal” stratigraphical sequence. The presence of charcoal of much older date in these deposits (Lyon-7620, early 6th millennium BC)

suggests reworking, probably before deposition.

49 Corresponding more or less to Demoule's sub-phase IIB; see above, note 27.

50 See for instance the ^{14}C dates from the necropolis of Varna, falling at 4560/4450 cal BC (Higham *et al.* 2007), or those from several sites in Serbia (Borić 2009), placing the end of Vinča D at roughly the same date. The question is discussed by several papers in Hansen *et al.* (eds) 2015.

51 For the terminological equivalence see *supra*, note 3.

52 Darcque *et al.* 2011, 196, 199; Koukouli-Chryssanthaki and Treuil 1989, 241; Koukouli-Chryssanthaki and Romiopoulou 1992, 232–3; Tsirtsoni (ed.) 2016, 456–7, and 454, tab. 1.

53 Demoule 2004, 164, tab. 4.15.

54 Tsirtsoni 2015; Tsirtsoni 2016.

55 See however above, note 43.

56 Both these hypotheses have been advanced in previous years by a number of scholars: see among others Boyadzhiev 1995, 173; Todorova 1995, 89–90; Weninger *et al.* 2009, 34–44.

57 See Darcque *et al.* 2014.

58 Among the numerous recent “unexpected” discoveries, we can mention that of several Neolithic flat sites in Northern Greece and Thrace, *e.g.* Makrygialos (Besios and Pappa 1990–5); Yabalkovo (Leshtakov *et al.* 2007; Roodenberg *et al.* 2014), that of mid-5th millennium sites in the Rhodopes (*e.g.* Varhari, Boyadzhiev and Boyadzhiev 2016 and present volume), or that of the Transitional FN-EBA settlement at Mikrothives (Adrymi-Sismani 2007, and Adrymi-Sismani 2016 in Tsirtsoni (ed.) 2016).

59 Darcque *et al.* 2009, 535, figs 6–7; Malamidou and Treuil 1996.

60 For the regional characteristics of the EBA I pottery, see Sherratt 1986; Malamidou 1997; Malamidou forthcoming.

Transformations of space in the Late Neolithic settlements of Northern Greece: Review of the evidence from Makriyalos and Thermi

Maria Pappa

Introduction

The 5th millennium BC in Central Macedonia is marked by changes both at the intra-community and the inter-community level. These changes can be traced in the layout of the settlements and also in the material culture and subsistence practices as revealed in the successive phases of settlements that have been under investigation over the last twenty years. The following remarks are based on the results of extended rescue excavations conducted by the former 16th Ephorate of Prehistoric and Classical Antiquities in the area of the Thermaic Gulf, namely at Makriyalos in Pieria and Thermi near Thessaloniki.¹ The settlements under discussion were founded during the second half of the 6th millennium and flourished throughout the Late Neolithic, into the first half of the 5th millennium BC.² Dates from Makriyalos are based on RC results while RC results for Thermi are forthcoming.³ For the moment, dating of the latter is based on pottery analogies.

Transformations of space are detected in both settlements during the transition from LN I to LN II, while changes in portable material culture are pointed out mainly at Makriyalos, where the study is well advanced in many fields. Both settlements are flat and extended⁴ and share similarities in construction techniques and layout of the features. During the first stages of establishment in the last quarter of the 6th millennium, they both reveal an extended settlement area, defined by large areas of earth removal (borrow pits) and ditches,⁵ containing a loose arrangement of structures.

Makriyalos I

At Makriyalos I the inner settlement surrounded by a double system of ditches covered an estimated area of around 28 hectares in total (Fig. 19.1). The route of the double ditch system was defined by a number of borrow pits⁶ situated on the edge of the settlement forming the limit to the outer world. During this early phase, which predates 5000 BC, the layout of the settlement consisted of loosely distributed but clearly separated groups of rather large structures. The remains of these structures were pits dug into the ground. Based on an analysis of the context and the size of the structures, they were interpreted as dwellings, surrounded by subsidiary pits and common areas. The existence of post holes, the configuration of steps leading to semi-subterranean spaces and the placement of hearths point to groups of structures with either sunken floors or basements. Secondary pits and free areas surrounded these structures, while pottery, tools, various small objects and also bioarchaeological material were found inside the pits. No significant difference in the kind or quantity of finds has emerged and accordingly, taking into account their size, these structures were best interpreted as dwellings. In the empty areas between these structures, people possibly practiced agriculture and stock-breeding.

Both ditches and borrow pits contained huge assemblages of

artefacts and ecofacts, which far exceeded the finds from habitation areas. These constructions can only be interpreted as the result of communal labour and seem to have absorbed actions related to the entire community. The majority of discarded material ended up there, and most human burials were also placed there.⁷ Furthermore, there was also evidence of feasting on a communal level. A huge borrow pit situated near the middle of the settlement area comprised a depositional context extremely rich in finds, yielding more than 40% of the total finds from the entire excavation of the phase. The integrated consideration of stratigraphic, ceramic and faunal evidence suggests that this context contained the debris from collective consumption on a massive scale.⁸

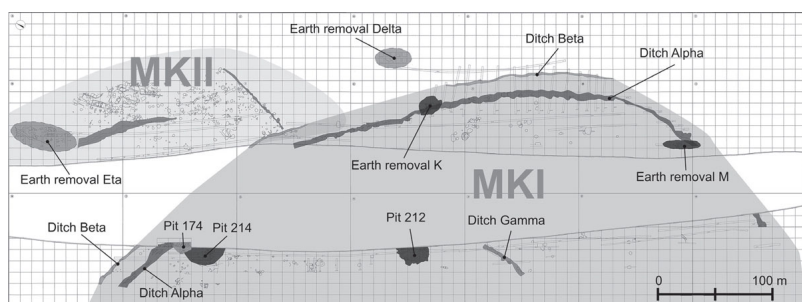


Figure 19.1. Plan of Makryialos settlement indicating the location of main features.

All the above indicate processes that stress the dominantly collective character of the community, while the community itself was restricted in a precisely scheduled settlement area. The settlement was abandoned around 5000 BC and the system of ditches was filled up with the gradual deposits of the settlement itself.

Thermi

During more or less the same period, the settlement at Thermi, on the other side of the Thermaic Gulf close to Thessaloniki, was

smaller in size, covering an estimated area of up to 10 hectares.⁹ Pit dwellings were also found scattered in the settlement area and though borrow pits and ditches were present at its edge, no clear pattern of ditches surrounding the settlement was traced. Extended stone floors were found both in open areas and inside pit dwellings. The depositions inside the borrow pits did not produce habitation layers, similar to Makriyalos I, but in contrast, at Thermi there was no sign of human burials. The study of the Thermi material is still at an initial stage, but indications of communal actions are most possibly also traced in the peripheral depositions as at Makriyalos. Actions that do not refer to a specific part of the society but rather to its entirety, are in this case mostly related to consumption practices. They can be traced in the very rich depositions in the borrow pits that provide a large quantity of pottery and an unusual number of objects such as “spit supports” and ladles. These objects bore traces of fire and were probably used in the process of cooking. They are interpreted, based on their quantity, as the remnants of common cooking areas, situated either in the peripheral borrow pits or discarded there after the circle of their use elsewhere in the settlement was completed.¹⁰

Re-organisation of the settlement layout after 5000 BC

The construction of such major features such as ditches and borrow pits and their management during the life of the settlement, as evidenced by the stratigraphy and especially by the presence of contexts of consumption of immense size in both settlements during the last quarter of the 6th millennium, show a high degree of communality.¹¹ The changes that occurred gradually during the 5th millennium and the way these settlements evolved in the following LN II phase suggest a re-organisation of the settlement layout, while some other aspects of production reflect further major changes in society.

At the settlement of Thermi, a rather radical change in

settlement layout and space management is observed in the first half of the 5th millennium. The borrow pits situated on the southern edge of the settlement area were originally covered with stones and used as open areas. During the end of the 6th millennium they were filled with grey deposits rich in finds that had been discarded from the settlement. Their use as open spaces during LN I is testified by the repetitive renovation of the stone floors in-between the grey layers (Fig. 19.2). During the LNII these deposits were clearly cut by deep cylindrical pits which were filled with coarse pottery and often sealed with stones. Among the coarse pottery, there were also decorated sherds. During the same period, it seems that a general reformation of space took place and the stone walls of rectangular ground dwellings appeared (Fig. 19.3). In this way, the open area was transformed, while closed and rectilinear above-ground constructions succeeded the subterranean structures.¹²



Figure 19.2. Thermi, LNI phase, paved borrow pit filled by grey depositions.

Respectively, the settlement of Makriyalos II after a short break was relocated to an adjacent area (Fig. 19.1). The new settlement was inhabited until the middle of the 5th millennium BC when it was abandoned. Though it consisted of a great number of structures similar to Makriyalos I, it is evident that basic changes

took place in the settlement layout, reflecting major social changes. The extent of the settlement was reduced to one-fifth of its original size, the inner settlement area was densely inhabited, while the average size of the dwellings was smaller. The ditches existed as poor imitations of the previous features. During this phase borrow pits were also found at the boundaries of the settlement. It seems that their functional and symbolic role was preserved, since a great quantity of the decorated pottery of the period was found in these depositions. Still, differences are noted, as it is the first time we find signs of habitation in some of their layers.

The structures of the inner settlement are better preserved and provide more details. The semi-subterranean dwellings of Makriyalos I in some exceptional cases became fully subterranean during Makriyalos II and included special depositions. Space was separated into smaller units that were close to each other. They were not organised into groups as Makriyalos I. This distinction is interpreted as a gradual transition to a different model of social organisation, related closely to individuality and domesticity. The average size of pits was smaller than that of Makriyalos I. Though practices of Makriyalos I survived, there was a movement from the colossal communal works to smaller more concentrated structures, while it seems that the community tended to invest in more secluded space, gradually transferring the emphasis from communality to individuality instead of communality.



Figure 19.3. Thermi, LNII phase, stone wall of a rectangular ground building.

At the end of Makriyalos II, another major change took place, as bedding trenches for walls that formed a separate building phase appeared. All the structures were heavily eroded and did not preserve any associated deposits. They also date to the Late Neolithic, as there were no finds of a later period encountered in the area. The bedding trenches belonged to oblong and rectilinear dwellings situated close to each other at the northern edge of the settlement. The direction of all walls was on a north–south axis, parallel to each other as part of an organised layout. The structures were open to the south. Two cases of slight curvature at one edge show a possible apsidal form, though the singular complete example had a closed and linear north end (Fig. 19.4). The total extent of these structures was about 60 sq m, which far exceeds the size of the subterranean houses of the previous phases. It is not only the size that marks a great differentiation, but also the overall dense layout of the new rectilinear structures, the manner in which the habitation area was structured and organised

and the consequences that this had for the organisation and life of the community. A new model of habitation evolved and for the first time a vertical succession was observed instead of a horizontal one, possibly reflecting a different relation to the past.¹³

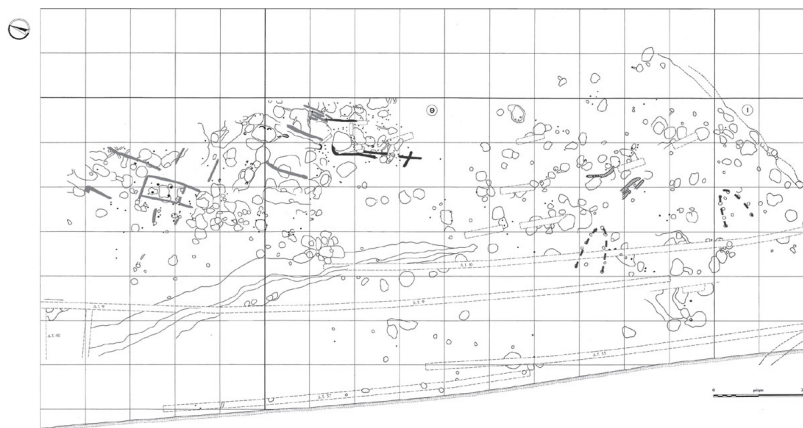


Figure 19.4. Makriyalos, phase II, bedding trenches of oblong dwellings.

Changes in production, consumption and mobility

Changes in space management in the 5th millennium were followed by further changes in social and economic aspects at least at Makriyalos and suggest a contrast between communal and more restricted scales of activity during the settlement phases. Burial practices were differentiated, as burials were found both in the periphery and the habitation area during phase Makriyalos II, entering the more restricted areas, in contrast to their deposition in more accessible spaces during Makriyalos I.¹⁴ Concentrations of all finds were very high in communal areas during Makriyalos I, while they were much lower in habitation areas. For example, the majority of animal bones and shells consumed during Makriyalos I was concentrated in communal areas while during Makriyalos II similar assemblages were found in restricted areas.¹⁵ This argument is also supported by other categories of finds, such as

pottery, *Spondylus* artefacts, bone and stone tools, which were highly concentrated in communal areas during Makriyalos phase I, in contrast to Makriyalos phase II where a more balanced presence of finds occurred among communal and habitation areas.¹⁶

Furthermore, apart from the correlation of communal areas versus areas of more restricted character, which refers to the social relation and organisation inside the settlement itself, it is also worth mentioning a major change in the relation of the community to the outer Neolithic world, as this is suggested by the increasing mobility of certain groups of finds.¹⁷

Pottery in Makriyalos II, as in the rest of Greece during LN II, is changing and the black burnished categories, which were dominant during LN I, are being replaced by painted and decorated pottery of Thessalian influence which dominated among decorated categories.¹⁸ The pottery testifies the circulation of pots over a distance of around 200 km, as imported products or as imported ideas that influenced the manufacture and decoration of pots. Petrographic analysis by Hitsiou showed that brown on cream pottery actually derived from a pottery centre at Dimini, Thessaly, while brown-on-red pottery, though produced in the vicinity of Makriyalos, was definitely made with the same principles as in Thessalian and other Western Macedonian sites.¹⁹

Change is also observed in the large group of knapped stone tools. The majority of knapped stone from Makriyalos came from phase II contexts, and the production of tools was at least doubled during this period.²⁰ The presence of a variety of raw materials testifies to relations with Thessaly and Central Macedonia. Most interestingly, this numerous category of finds, exceeding a total of 11,000 items in both phases, included a small number of obsidian tools deriving from Melos, from both the Adamas and Demenagaki quarries.²¹ This group, indeed very small compared to the total, seems to come exclusively from the second phase of the settlement, evidence of an opening of the community to Southern Greece.

It is also the production of *Spondylus* objects, mainly annulets, that was different. They were manufactured on site and there is evidence of all the steps of the *chaîne opératoire* during both phases. Their number increased remarkably during Makriyalos II; they were found interspersed in the habitation area, in contrast to the very low presence of these objects in the habitation units of phase MKI. The production became more standardised during Makriyalos II, indicating a possible annulet manufacture centre.²²

The figurines, almost all made of clay in phase I, continued this tradition during phase II; however, in the second phase half of the total group was made of marble.²³ This was a significant change in the perception of the human body as typified in variations of the same repeated schematic figure. This possibly reflects some kind of social change, presumably not local, since this type is common from the end of the Late Neolithic mainly in Thessaly but is also found in examples from Western Macedonia.²⁴

Finally, a total of 92 copper items were found, mainly in phase Makriyalos II (61).²⁵ The MK I objects are very small fragments of copper mineral, probably malachite, while the MK II objects are mostly beads made of thin copper sheet or malachite, with the exception of one chisel and three pendants. Two of the pendants are of the common “idol” type found at the end of the Late Neolithic and the beginning of the Final Neolithic period in the Balkans.²⁶ These objects were usually made of precious metal, gold and silver, also of stone and clay, but, as far as I know, not of copper. It is most probable that the metal objects had been introduced to the site either as raw matter, ore or ingot, or finished objects and they document, along with the materials mentioned above, the existence of an exchange network during the Neolithic.²⁷

Conclusion

The flourishing sites of Makriyalos and Thermi were abandoned in the middle of the 5th millennium. In both cases settlements were

re-established in an adjacent area during the Bronze Age, but the question remains as to the time span in-between these two periods. However, the area of Northern Pieria was not devoid of habitation, as 12 km south-west of Makriyalos, a rescue excavation at Kato Ayiannis revealed part of a ditch that preserved the remains of a Final Neolithic settlement.²⁸ It is just a small indication of the missing evidence, since these remains are not easily detected in the landscape. Though only partially investigated, the settlement at Kato Ayiannis attests that people continued to inhabit this region and construct their settlements using the knowledge surviving from previous generations, as ditches and pits also form the settlement area. Changes in the social and economic patterns, despite the resemblance of structures, must have taken place since the middle of the 5th millennium, although they cannot be easily traced because our knowledge of the following period is fragmentary and insufficient.

However, data analysis of the extensive excavations at Makriyalos and Thermi indicate changes on various levels throughout the Late Neolithic period. In the end, the two different phases correspond not only to a different typology, but to deeper structural reforms. During the Late Neolithic I phase, the communal character of the settlement dominated. Massive labour was managed for the construction of communal works that determined the extended settlement area. Furthermore, the same society, which was clearly subdivided into groups, experienced communal manifestation through feasting, while the dead were placed in peripheral features, presumably accessible to all. The high degree of communality testified during the LN I gradually decreased, while during the subsequent LN II period the extent of the settlement area was reduced and all structures came closer to each other. The layout of the settlement and the distribution of finds reflect an increasing degree of individualisation. At the same period material culture testifies to an opening to the outer world. The character of the community manifestations is balanced by the

relations on an intercommunity level, in a communication network that expands beyond the border of Greece, into the Balkans.

Notes

- 1 The Makriyalos excavation was co-supervised by M. Besios and M. Pappa during the last decade of the 20th century, while the Thermi excavation started in 1987 under the supervision of D. Grammenos and continues since 2000 until today under the supervision of M. Pappa.
- 2 Archaeological phases and chronology follow Andreou *et al.* 2001, 260; Gallis 1996b, 28–9. Accordingly, the period between 5400–4500 is termed Late Neolithic, with two sub-phases (5400–4900 and 4900–4500 BC respectively) and the period from 4500 until 3000 is termed Final Neolithic.
- 3 Publication in preparation by Maniatis and Pappa.
- 4 On flat and extended settlements of Northern Greece, see Andreou *et al.* 2001, 300; Kotsakis 1999, 68.
- 5 Pappa 2008.
- 6 Pappa and Besios 1999a, 180.
- 7 Triantaphyllou 2001, 47.
- 8 Pappa *et al.* 2004; Pappa *et al.* 2013. A similar incident of feasting can be traced at Promachon-Topolnitsa, Koukouli-Chrysanthaki *et al.* 2007, 52.
- 9 Pappa 2007, 263.
- 10 Pappa 2012, 31.
- 11 Halstead 2005, 47; Pappa *et al.* 2004, 40–2; Pappa *et al.* 2013.
- 12 Pappa *et al.* 2011.
- 13 Halstead 1999, 87; Kotsakis 1999, 73.
- 14 Above note 5.
- 15 Halstead 2007, 39; Veropoulidou 2011.
- 16 Isaakidou 2003, 234; Pappa and Veropoulidou 2011, 116; Pappa 2008; Skourtopoulou 1999; Tsoraki 2008; Tsoraki 2011.
- 17 Kotsakis 2008a, 245.
- 18 Hitsiou 2003; Kotsakis 2010, 69 (Kotsakis supervised the study of the Makriyalos pottery); Urem Kotsou and Kotsakis 2007; Urem-Kotsou 2005; Vlachos 2009.
- 19 Hitsiou 2003.

- 20 Skourtopoulou 1999, 121; Skourtopoulou 2006, 61.
- 21 Kylikoglou pers. comm.; Milic pers. comm.
- 22 Pappa and Veropoulidou 2011, 118. On the use of the term “annulets”, the conventional name has been used to designate the form of the artefact rather than to attribute a particular use, Veropoulidou forthcoming.
- 23 Nanoglou and Pappa 2009, 254; Nanoglou this volume.
- 24 Papathanasopoulos 1996, 305–6.
- 25 Pappa *et al.* 2002, 273–9.
- 26 Muhly 2006, 157.
- 27 ICPMS analysis and metallography show that smelting of copper ores was practiced at Makriyalos along with the melting and use of native metal. A transitional stage in the metallurgy of copper is thus evidenced, from the exploitation and use of native sources to the more complex reductive processes of metal ores; Pappa *et al.* 2002, 276.
- 28 Besios and Adaktylou 2011, 235.

Visviki Magoula, Thessaly: Reconsidering cultural change from the Arapi to the Dimini phase

Eva Alram-Stern

Introduction

The Dimini culture is generally understood as the cultural peak of the Late Neolithic period in Thessaly. However, little attention has been paid to the social and cultural changes which may have led to its emergence. Although stratigraphical information is limited, the rich finds of Visviki Magoula allow a characterisation of the preceding Arapi phase, which, by comparing it with the Dimini period, may help us in characterising the Late Neolithic sequence of Thessaly.

Visviki Magoula

The Neolithic settlement of Visviki Magoula is a small tell 6 m in height with a diameter of 150 m, situated in the South-Eastern Thessalian Plain north-east of Velestino, not far from Lake Karla¹ and known since the times of C. Tsountas and A. Wace and M. Thompson.² Excavations took place in 1941 under the auspices of the *Sonderkommando Griechenland* (Task Force Greece) of the *Einsatzstab Reichsleiter Rosenberg*, Rosenberg being Hitler's leading theorist. The head of operations was H. Reinerth, professor of

prehistory in Berlin and head of the “Office for Prehistory”.³ The archaeological material and the archives which survived World War II are today stored in the National Museum at Athens as well as in the *Pfahlbaumuseum Unteruhldingen* at Lake Constance in Germany.⁴ Work on the publication of the finds from this excavation started in 2004, when the author was invited by A. Dousougli to participate in the publication.⁵ The study of the pottery showed that settlement of the tell started at the end of the Early Neolithic (EN) period and continued during the Middle Neolithic (MN) and Tsangli-Larissa phases. The main part of the material comes from the Arapi and Dimini phases. Some finds point to a continuation of settlement throughout the Rachmani phases and Early Bronze Age I (Table 20.1). The site is well known for the plan of a so-called megaron, which D. Theocharis as well as K. Gallis illustrated in their overviews of Neolithic Greece and dated to the Arapi phase.⁶ This plan comes from its first and only publication in February 1942 in the *Völkischer Beobachter*, the journal of the National Socialist propaganda ministry, aiming at demonstrating the Nordic descent of this building type and its inhabitants.⁷

Table 20.1. Chronological chart.

<i>Years BCE</i>	<i>Chronological subdivision</i>	<i>Important contexts and typological subdivision</i>	<i>Major pottery wares</i>
3500	Early Bronze Age	Petromagoula	Heavy Burnished Ware
	Chalcolithic	Rachmani	Crusted Ware
4500	Final Neolithic		
4500	Late Neolithic II	Otzaki B/C – Dimini	Brown on Cream Incised Black on Red White on Red
4800		Otzaki A Arapí	Black on Red White on Red Arapí Polychrome Arapí Bichrome
	Late Neolithic I	Tsangli-Larissa	Brown on Buff Black Burnished
5300			
	Middle Neolithic	Sesklo I–III	Red on White Red Monochrome
5800			
	Early Neolithic	Sesklo A-B Argissa	Early Painted Monochrome
6500			

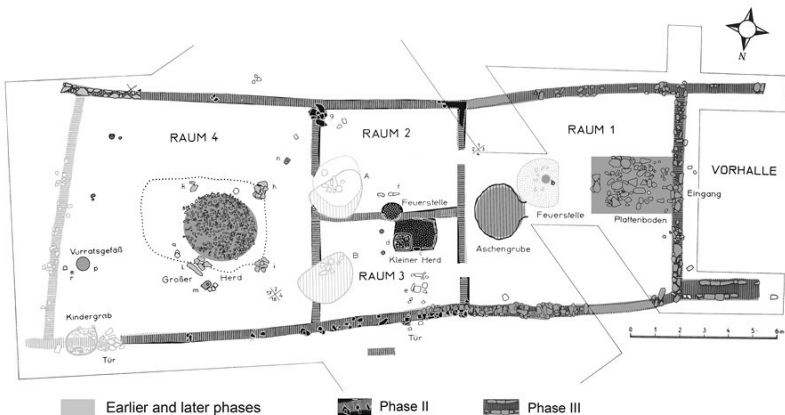


Figure 20.1. Visviki Magula: detailed plan with main settlement phases

(original plan of 1941–1943, modified by E. Alram-Stern and M. Frauenglas).

However, a more detailed plan discovered in the former East Berlin, as well as the study of the profiles and photographs, shows that the settlement remains belong to different phases, so that the architectural layout has to be re-evaluated.⁸ All in all, the profiles prove that the building remains belong to a settlement sequence probably including rebuilding and modification of existing buildings (Fig. 20.1).

Two main phases may be seen: according to the profiles, an older construction phase consists of stone foundations with a superstructure of mud brick, which was indicated in the detailed plan. The layout of these walls suggests small rooms of 5.7×4 m in size. Up to now, no synchronous architectural remains have been published. But the small size of the rooms seems to be reminiscent of houses found in Sesklo.⁹

This structure includes a small oven or hearth of clay on a stone bedding, which was connected to an assemblage of cereals and ground stone implements pointing to food storage and preparation inside the house. The hearth itself exhibits strong parallels to Late Neolithic I Dikili Tash,¹⁰ and similar assemblages are known from the same site. Furthermore, it is similar to the house model from Platia Magoula Zarkou where it is depicted together with the family.¹¹

The remains of the subsequent building phase, which are preserved on a higher level, are of stone, with the supposed mud bricks missing. The walls are preserved in a very fragmentary way, but may have belonged to a larger building complex consisting of a sequence of rooms more than 8 m in width. Such buildings are known from nearby Pevkakia Magoula¹² as well as from Dikili Tash in Eastern Macedonia.¹³ But they also recall the well-known megaron buildings from Sesklo and possibly also Dimini.¹⁴

In the eastern part of the excavation area there was a large oven of which a circular stone base is preserved. The area of the

hearth produced a number of spit supports which according to their incised decoration should be dated to the Dimini phase.¹⁵ The hearth itself, but also the ground stone tools documented in the plan have a good parallel at Palioskala.¹⁶ Therefore it may be argued that the building sequence of the tell consisted of an earlier settlement phase with small-roomed buildings hypothetically dating to the Arapi phase and of a later phase consisting of large-roomed buildings which may date to the Dimini phase though a Rachmani date is also possible.

Visviki Magoula pottery

Concerning pottery, except for a few finds documented *in situ*, the pottery has not been recorded according to strata. Therefore pottery from Visviki can only be dated with the help of published stratified material like that from Arapi, which exists for the pre-Dimini phases of the Late Neolithic period.¹⁷ For the Dimini as well as the Rachmani phases, the established stratigraphies of the excavations carried out by V. Miložić at Otzaki Magoula and Pevkakia Magoula and published by H. Hauptmann and H.-J. Weisshaar have to be used. However, the stratigraphy of both sites is problematic, although tendencies in terms of ceramics are evident.¹⁸ Therefore we know little about the pottery of the transition from the Arapi to Dimini phase as well as the continuities and changes which may have taken place during the Dimini and Rachmani phases. So the following observations must be treated with caution.

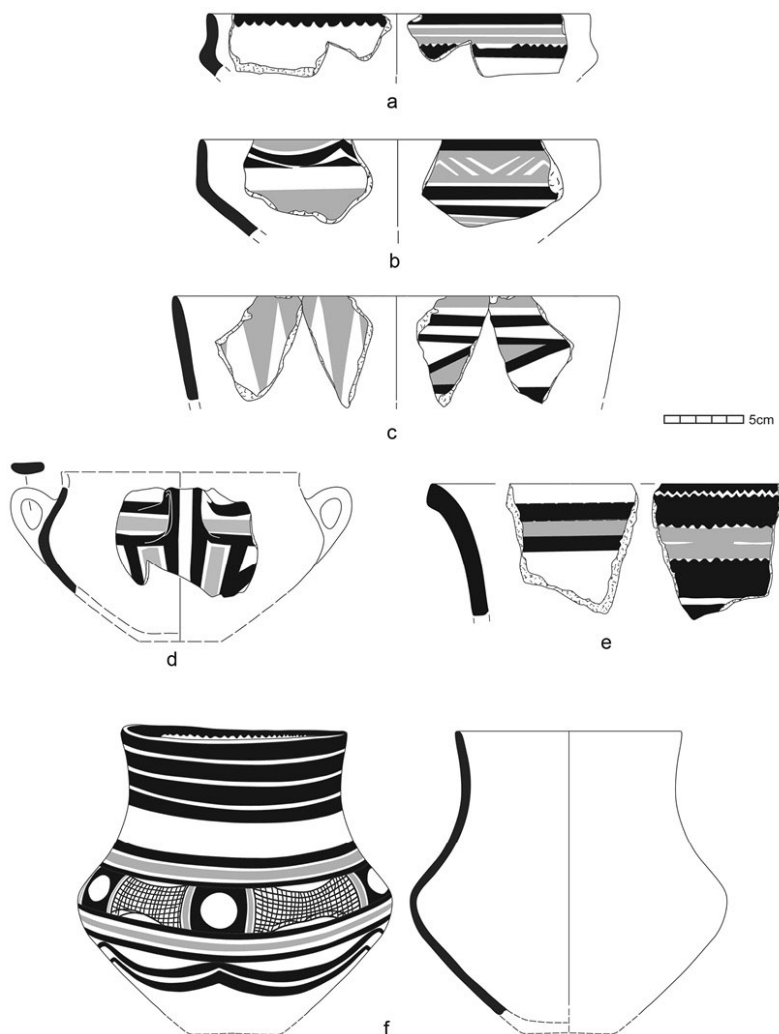


Figure 20.2. Polychrome Black-and-Red-on-White pottery of the Arapi phase: a. EAM 17291, b. EAM 18082, c. EAM 16818; d. EAM 16752, e. EAM 16752, f. EAM 17353 (drawings by E. Alram-Stern, A. Dousougli and M. Frauenglas).

From the pottery assemblage of Visviki, mainly decorated sherds and monochrome rim fragments of a certain size, all in all more than 3000 pieces, have survived. Because of this selection, a study cannot be based on a statistical analysis of the material.

However, it seems that more or less all decorated sherds were kept, and on this basis the great variety of patterns and shapes can be used for defining the characteristics of the prestigious patterned Late Neolithic pottery of the South-Eastern Thessalian Plain in the area of Lake Karla. On the other hand the characteristics of this pottery of the various Late Neolithic phases show that production and use of decorated pottery must have undergone a considerable change.

Starting with the Arapi phase, according to stratified analogies from Arapi Magoula¹⁹ about 400 sherds definitely date to this period. Of the pattern painted pottery, all in all 204 sherds belong to the polychrome Red-and-Black-on-White Ware,²⁰ 37 to the bichrome Black-on-White Ware,²¹ 5 to Red-on-White and 93 to the Black-on-Red Ware²² and 7 to the White-on-Red ware.²³ This is much more than has ever been published from the Arapi and Otzaki Magoula contexts, and especially the percentage of polychrome ware is remarkable.

For the polychrome pottery with red and black decoration on white slip a variety of shapes exist, which are decorated with characteristic motifs and syntax: the majority of them are bowls, numerous fragments coming from carinated bowls, decorated with hanging triangles, zig-zag and festoon patterns, which compare well with Arapi Magoula (Fig. 20.2a–b).²⁴ But there are also many fragments of deep bowls with globular or straight-sided bodies which are abundant in Pevkakia Magoula and unknown from the area of Larissa.²⁵ The interior decoration of these bowls is characterised by long triangles, and the exterior is covered with linear designs (Fig. 20.2c).²⁶ The petrographic analysis of nine fragments from such bowls shows that all of them were either produced locally or have a provenance from the area between Velestino and Sesklo/Dimini.²⁷ Furthermore, a number of globular bowls with loop handles as well as fruit stands with linear design are attested (Fig. 20.2d). But there are also larger straight-sided bowls, partly with everted rim and a very characteristic generous

design, which have a diameter up to 40 cm (Fig. 20.2e, 20.3a). Furthermore, necked jars characterised by triangles, circles as well as cross-hatched fields are abundant (Fig. 20.2f). However, bichrome black on white pottery is limited to fruit stands and necked jars with characteristic design (Fig. 20.3b). A similar variety of shapes are produced in black on red and rarely in white on red ware, also including larger bowls and jars. In comparison to the polychrome ware, the decoration tends to be simpler (Fig. 20.3c–h). However, some motifs, like hanging triangles and rhomboids, connect the black on red ware with the polychrome ware (Fig. 20.3e, h–i). In general, all wares and shapes assigned to the Arapi phase show a remarkable variety in size.²⁸

Concerning the Dimini phase, 128 pattern-painted pottery fragments of Black-on-Red Ware,²⁹ White-on-Red,³⁰ polychrome ware with black and white paint on red surface³¹ as well as Brown-on-Cream Ware³² were collected. Black-on-Red and White-on-Red painted wares of this period are characterised by decoration covering the entire surface and often consisting of spiraloid and maeandroid design (Fig. 20.4). For the Black-on-Red Ware Hauptmann tried to differentiate an earlier phase he named Ayia Sophia or Otzaki A phase from a later phase named Otzaki B.³³ According to him, the pottery of the earlier phase is characterised by their execution in solid lines, while pottery of the later phase has its motifs filled with hatching or cross-hatching. These two styles possibly point to a stylistic development, the hatched decoration being connected with Brown-on-Cream Dimini pottery. However, within the pottery material from Visviki several sherds actually combine both styles so that such a chronological differentiation needs still more stratigraphic proofing (Fig. 20.4a). Interestingly, of the few Black-on-Red fragments sampled two come from the area of Tsalmas.³⁴

In Visviki Brown-on-Cream Dimini ware is much less frequent than Black-on-Red (Fig. 20.5a–c). Half of the sherds come from the surface layer, all of them being highly fragmented. Larger

fragments were only present in Trench B dug on the flank of the tell. All this points to a late date of the Brown-on-Cream Ware compared to other Dimini wares. Again, Visviki gives no evidence for continuity of bichrome Arapi Ware and Brown-on-Cream Dimini Ware.³⁵ With the exception of one local fabric, all pots sampled were produced in the area of Dimini.³⁶ In contrast to the Arapi phase, shapes of the Black or White-on-Red as well as Brown-on-Cream Dimini wares are more or less restricted to shallow, slightly carinated so-called Dimini bowls and to a minor extent to fruit stands. Polychrome Dimini ware differs considerably from the other pattern painted wares of this period (Fig. 20.5d–e). It is characterised by rhomboid, spiraloid or meandroid motifs designed in broad strips. Furthermore, this ware comprises a variety of shapes including deep rounded bowls, fruit stands and necked jars.

Fifty-five sherds belong to incised wares,³⁷ of which several characteristic wares can be distinguished,³⁸ among them pottery with incised motifs filled with dots,³⁹ *Furchenstich* decoration⁴⁰ as well as fine incised decoration (Fig. 20.5f–i). In Visviki the characteristic shape of this ware is the deep bowl with vertically orientated triangular lugs (Fig. 20.5f–h). Most remarkably, in contrast to other wares, the incised bowls are characterised by a more or less standardised size between 16 and 20 cm.

In general, the incised motifs differ considerably from the most frequent painted pottery wares. It has been argued that, by analogy to the painted wares, the various incised wares belong to different stages within the Dimini phase, but this is difficult to determine since stratigraphic information is missing. As a matter of fact, the rhomboid design on some bowls with dot impressions (Fig. 20.5f) recalls a motif known from polychrome Dimini ware (Fig. 20.5d). On the other hand, isolated spirals on *Furchenstich* incised ware (Fig. 20.5g) may be connected with a Dimini Brown-on-Cream fruit-stand from Visviki (Fig. 20.5c), which again compares well with a fruit stand in Pevkakia Magoula.⁴¹ Fine

incised ware is known from the Dimini phase settlement of Makriyalos II⁴² and should therefore be synchronous with Brown-on-Cream Dimini ware (Fig. 20.5h). In Visviki, in addition to the deep bowl, scoops with wishbone handles are attested, which Weisshaar already dates to the Rachmani phase of Pevkakia Magoula (Fig. 20.5i).⁴³

In summary, the decorated pottery of the Dimini phase differs considerably from the previous Arapi phase: during the Arapi phase there is a variety of pattern painted wares, all of them being produced in a wide variety of shapes and sizes. Perhaps with the exception of bichrome wares, there is no major preference for certain shapes in the production of specific wares. However, within the wares certain shapes are preferentially connected with certain motifs and their specific arrangements. Some of those arrangements seem to be similar throughout the Thessalian plain, others may be restricted to Southern Thessaly, as they are found in Pevkakia Magoula. Therefore, the relation between shapes and decoration seems to be more or less standardised, and we should think about the reasons which led potters to decide on such an arrangement. In general, pattern painting was applied during the Arapi phase for vessels used for serving and consumption.

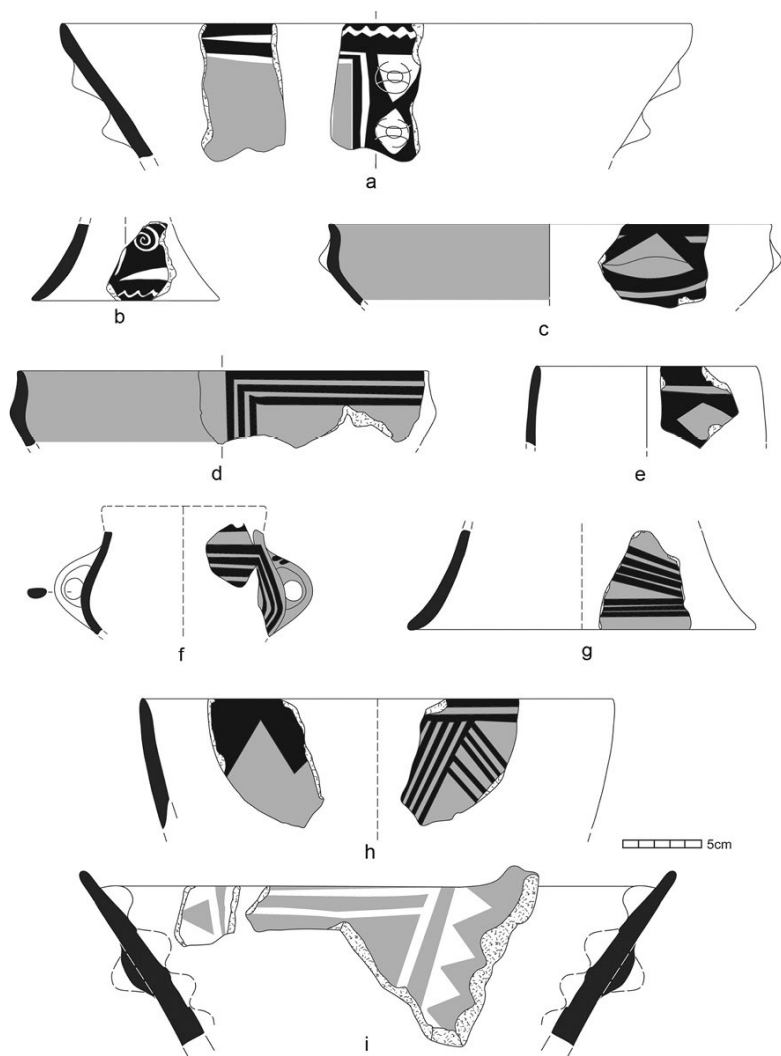


Figure 20.3. a. Polychrome Black-and-Red-on-White pottery of the Arapi phase EAM 16779, b. Bichrome Black-on-White pottery of the Arapi phase EAM 16877, c.-h. Black-on-Red pottery of the Arapi phase c. EAM 17010, d. EAM 17005, e. EAM 16994, f. EAM 17082, g. EAM 17033, h. EAM 17031, i. White-on-Red pottery of the Arapi phase EAM 16909 (drawings by E. Alram-Stern, A. Dousougli and M. Frauenglas).

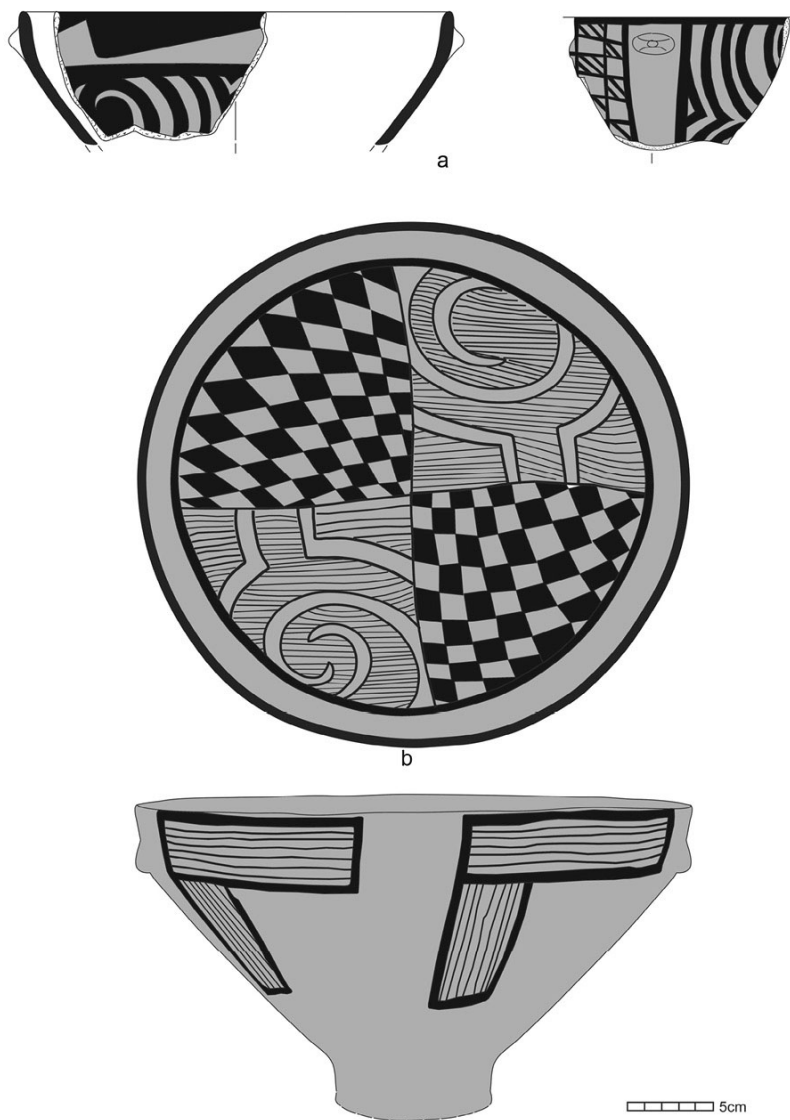


Figure 20.4. Black-on-Red pottery of the Dimini period, a. EAM 17081, b. 17260 (drawings by E. Alram-Stern, A. Dousougli and M. Frauenglas).

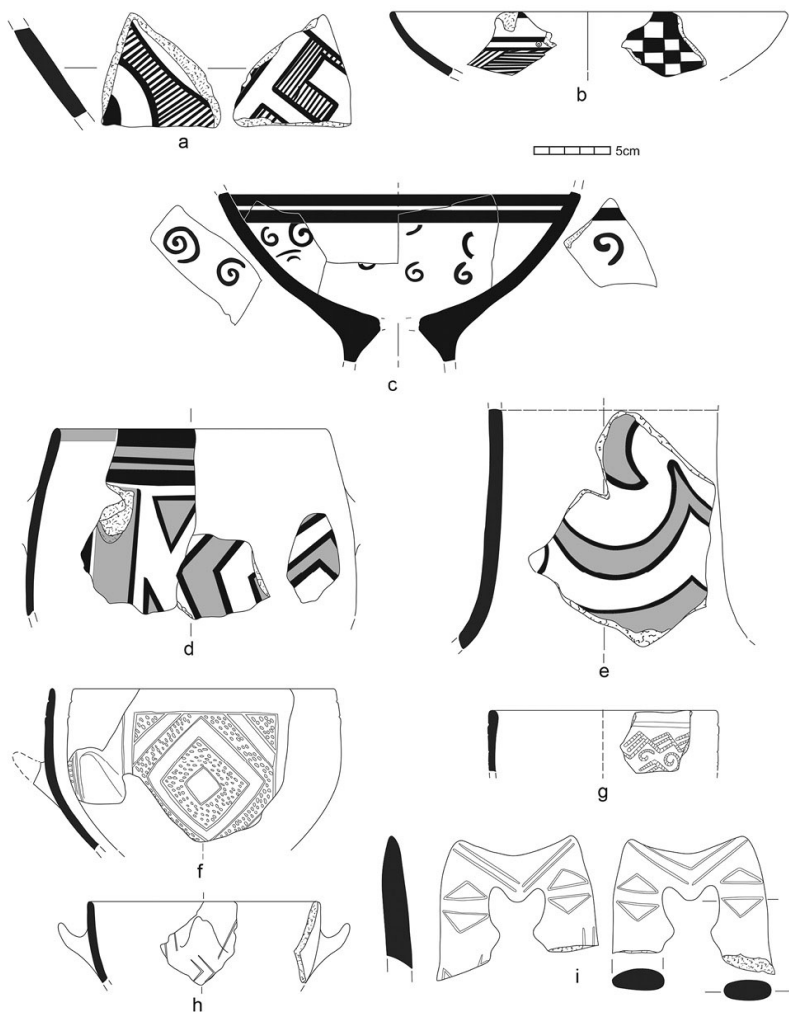


Figure 20.5. a–c. Brown-on-Cream Dimini pottery (a. EAM 17161, b. EAM 17093, c. PMU 30881); d–e. Polychrome Black-and-White-on-Red pottery of the Dimini period (d. PMU 28743, e. EAM 16854); f–i. Incised ware of the Dimini period (f. EAM 18095, g. EAM 17238, h. PMU 28883, i. EAM 17250) (drawings by E. Alram-Stern, A. Dousougli and M. Frauenglas).

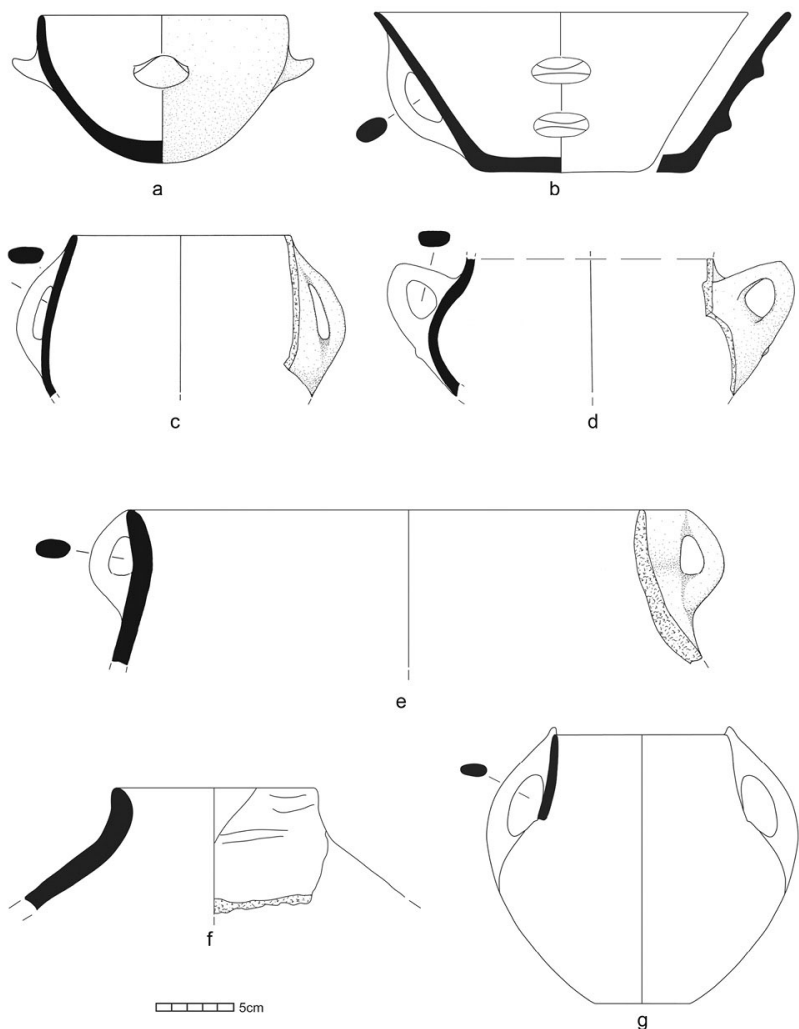


Figure 20.6. Monochrome pottery a. EAM 18099, b. EAM 18088, c. PMU 29069, d. PMU 29079, e. PMU 29073, f. PMU 28850, g. EAM 17361 (drawings by E. Alram-Stern, A. Dousougli and M. Frauenglas).

In contrast, during the Dimini phase there are major differences in the application of bichrome Black-on-Red, White-on-Red, and Brown-on-Cream wares on the one side and incised as well as polychrome wares on the other side. Especially the bichrome wares show a restricted repertoire of shapes, which are,

with the exception of a few footed bowls, mainly slightly carinated bowls of Dimini type. In contrast, the Visviki incised wares were restricted to deep bowls of a certain size and scoops. Therefore, these wares show a higher standardisation in terms of shapes, although the decorative motifs are combined in a most imaginative way. However, a number of different shapes and motifs are recorded for polychrome wares although they are all connected by a characteristic style. In general, pattern painted and incised wares were applied to bowls used for eating and drinking (Fig. 20.6).

Aside from these decorated wares, there was a large amount of monochrome pottery (Fig. 20.6), which is, of course, difficult to assign to a certain chronological phase without stratigraphy. As far as can be seen by analogies of the shapes of securely dated pattern painted pottery, the Arapi material included a larger number of red, black and brown monochrome bowls (e.g. Fig. 20.6b, d). In contrast, monochrome bowls attributable to the Dimini phase are rare. In Dimini itself, too, only 20% of bowls, most of them deep rounded bowls, are monochrome.⁴⁴ However, there is a high amount of hole-mouthed and necked jars, which must belong to Arapi as well as the Dimini phases. Therefore, it seems as if during the Arapi phase pots for serving were produced in monochrome as well as patterned wares, whereas during the Dimini phase monochrome pots more or less complemented the decorated eating and drinking vessels. Therefore emphasis was given to these patterned eating and drinking vessels, which could be used in social gatherings of people.

Conclusion

In conclusion it should be pointed out that this typological work on pottery shows that during the 5th millennium the use of pottery underwent a significant change, which must be related to social and economic changes. This is also seen in the emergence of settlements with a radial layout like Dimini,⁴⁵ but also Visviki

where a small-roomed layout was followed by large-roomed house units.

Furthermore, during the Dimini phase the manufacture of pottery shows further specialisation, as can be seen by the concentration of pottery production in the area of Dimini. Further circulation of raw materials is proven by the occurrence of *Spondylus* shell and the local production of *Spondylus* rings also in various inland sites.⁴⁶ All this points to an intensification of contacts, which possibly is to be connected with the circulation of metals as the new prestigious material at the dawn of the age of metals.⁴⁷

Notes

1 By its size of about 2 ha Visviki belongs to the smaller Neolithic sites of Thessaly (Demoule and Perlès 1993, 370; Johnson and Perlès 2004).

2 Gallis 1992, 93–4, no. 274 (Ayios Georgios Feron 3); Tsountas 1908, 4 no. 9; Wace and Thompson 1912, 8.

3 For the history of this institution and its activities in Greece: Hiller von Gaertringen 1995, 482–3; Schöbel 2002, 321–96; Schöbel 2008.

4 The finds stored in the National Museum have been returned to Greece in 1951, while the finds still stored in Germany were returned in June/July 2014.

5 Alram-Stern and Dousougli-Zachos 2015. The project has been granted by the Institute of Aegean Prehistory, Philadelphia and the Austrian Science Fund P 21596-G19 “Visviki Magula/Velestino”. We would like to thank all those who supported this project, provided us with material and allowed us to study it, L. Papazoglou-Manoudaki, K. Paschalides, E. Konstaninidi-Syvridi, A. Christopoulou, K. Manteli (National Museum at Athens, Prehistoric Collection), G. Schöbel, P. Walter, J. Hummler (Pfahlbaumuseum at Unteruhldingen), B. Hänsel (Freie Universität Berlin), J. Heiden and U. Dirschedl (Archives of the German Archaeological Institute Berlin and Athens), V. Rondiri (Ephorate of Volos), G. Toufexis and K. Gallis (Ephorate Larissa) and A. Moundrea-Agrafioti (University of

Volos).

6 Gallis 1996a, 65 fig. 2; Theocharis 1973, fig. 191.

7 Benecke 1942.

8 Alram-Stern 2015; Douzougli-Zachos and Alram-Stern 2009; Hänsel 2001.

9 Kotsakis 2006, 212, fig. 3, 214, fig. 4.

10 Deshayes 1974; Treuil 1992b, 41–3; 45–8.

11 Gallis 1985.

12 Andreou *et al.* 2001, 546; Weisshaar 1989, 9–12.

13 Koukouli-Chrysanthaki 1994, 68–75; Andreou *et al.* 2001, 572.

14 Nanoglou 2001, 314.

15 Pappa and Nanoglou forthcoming.

16 Toufexis 2006, 57.

17 Arapi Magoula (Hauptmann and Miložčić 1969); Makrychori II (Demoule *et al.* 1988, 51).

18 Hauptmann 1981; Weisshaar 1989.

19 Hauptmann and Miložčić 1969, 49–77.

20 Wace and Thompson 1912, 16, B3 γ .

21 Wace and Thompson 1912, 16, B3 α 3.

22 Wace and Thompson 1912, 16, B3 α 2b.

23 Wace and Thompson 1912, 16, B3 α 1.

24 Hauptmann and Miložčić 1969, 112, pl. 13, 15–21.

25 Weisshaar 1989, 55–7.

26 Weisshaar 1989, pl. 1, 3, pl. 36.8.

27 Pentedeka 2015.

28 According to petrographic analysis of the ten pieces sampled, nine are probably local, one carinated bowl however coming from North-Eastern or Eastern Thessaly (Pentedeka 2015).

29 Wace and Thompson 1912, 16, B3 α 2b.

30 Wace and Thompson 1912, 16, B3 α 1.

31 Wace and Thompson 1912, 16, B3 β .

32 Wace and Thompson 1912, 16, B3 α 2a.

33 Hauptmann 1981, 14–24, 47–9.

34 Pentedeka 2015.

35 For a characterisation of Brown-on-Cream pottery see Hitsiou 2003, 172.

36 Pentedeka 2015.

37 Hauptmann 1981, 63–74; Wace and Thompson 1912, 16, B2.

- 38 All sherds sampled come from locally produced vessels (Pentedeka 2015).
- 39 Compare Otzaki Magula (Hauptmann 1981, 278, pl. 80, 9), Argissa Magula (Hauptmann 1981, pl. 84, 9 [Otzaki A-Stufe]), Pevkakia Magula (Weisshaar 1989, pl. 29, 1, 6–7, 10, 12–6, 18–24), Phthiotic Thebes (Weisshaar 1984; Weisshaar 1989, pls 88–9).
- 40 Weisshaar 1984, pl. 58, 9.
- 41 Milošević *et al.* 1976, pl. 15, 13; Weisshaar 1989, 146, pl. 2, 10.
- 42 Hitsiou 2003, 79–80; 170–1.
- 43 Weisshaar 1989, pl. 14, 14; pl. 133 type 203.
- 44 Souvatzi 2008, 120, fig. 5, 7, 121, fig. 5, 9.
- 45 Souvatzi 2008, 107–18.
- 46 Halstead 1993; for a production also in Visviki see Galik 2015a and Galik 2015b.
- 47 Zachos 2010.

The role of the Theopetra Cave in Thessaly, Greece, at the end of the Neolithic: Habitual or symbolic use?

Nina Kyparissi-Apostolika

Introduction

The Theopetra Cave, at the westernmost edge of the Thessalian Plain, is well known for its prehistoric sequence covering the Middle and Upper Palaeolithic, the Mesolithic and the Neolithic, with the dates ranging from *ca.* 130,000 years ago to *ca.* 4000 BC.¹ From the latter period, a large quantity of material such as pottery and small finds coincides with the phases of well-known Thessalian Neolithic open-air sites. As opposed to other sites, however, some of the Theopetra Cave Final Neolithic objects originate from distant areas, mainly from the Balkans. The virtual absence of such objects at other Greek sites, and especially Thessalian ones, poses the argument that the role of the cave could have changed during the last period of human presence there.

The material

The objects to be discussed are mainly items for self-decoration, a few clay figurines and possibly some flint implements of non-local origin. Some of them are included in the *Proceedings of the Urla*

Symposium from 1997.² Still, more finds in later years of excavation in the Theopetra Cave enforced the idea of inter-community exchanges with the Balkans. Namely:

Ornaments

Large-sized beads of a certain type (3–4.5cm in length and 1.5–1.9 cm in diameter) perforated along their long axis (Fig. 21.1a), are not known from Greece but are well known in the 5th millennium BC Balkans.³ Their large size, compared to other more common bead types in Greece, and the fact that they still maintain natural cavities of the right valve of the shell from which they were fabricated (*Spondylus gaederopus*), led us at first to consider them as locally manufactured; however, they do not have the properties of other beads, made for example at Dimini, which are characterised by symmetrical shapes and careful craftsmanship. This type of bead is very common in the Carpathian Basin⁴ and is also known from the site of Vinča ca. 4500 BC.⁵ New research undertaken recently in Hungary⁶ took into consideration shell objects from several sites in Greece, including the beads under discussion from the Theopetra Cave. According to the results, the raw material proved to be of Mediterranean/Aegean origin, as N. Shakleton and C. Renfrew have written since 1970,⁷ while the Black Sea proposed by H. Todorova as a source area,⁸ was not included in the new research. In such a case, the following scenario should be proposed for the beads from the Theopetra Cave: the raw material was collected from the Mediterranean and Aegean coasts, transported to the Carpathian Basin, manufactured into these particular shapes, and could then have returned to Greece in the form of imported precious goods. This hypothesis of returning southwards as manufactured items sounds unreasonable at first glance. But taking into consideration the extensive system of exchange that took place at that period, no hypothesis can be excluded.

At the same time, imitations of shell beads of the same large

size, but made of limestone, become more and more common in the Carpathian Basin. From the Theopetra Cave we also have three large-size beads made of marble (Fig. 21.1b), which could also be considered imitations of the shell beads, with possibly similar origin.

Three bracelets found in Theopetra Cave made of the same *Spondylus gaederopus* shell (Fig. 21.1d), as well as a perforated pendant with decorative notches made of the same shell (Fig. 21.3c) could also be considered as special precious goods/offerings, since they are for the time being probably unique in Western Thessaly and certainly not very common in general in Greece.⁹ And although Dimini is thought of as a centre where shell bracelets were fabricated and exchanged through a system of networks that reached Central Europe, bracelet circulation is not common in Thessaly, apart from a very few cases such as in Tsangli¹⁰ which is much closer to the east coast of Thessaly. Nevertheless, they have reached the far-off and isolated cave of Theopetra at the westernmost edge of the Thessalian Plain.

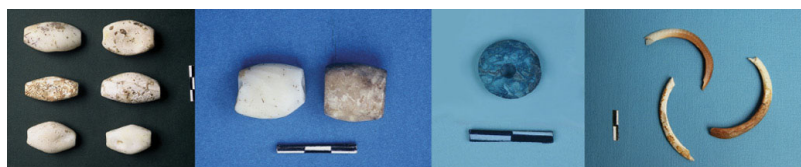


Figure 21.1. Beads and bracelets: a–b. Large-sized beads made of the shell *Spondylus gaederopus* (a) and of marble (b); c. Bead made of malachite; d. Parts of bracelets made of the shell *Spondylus gaederopus*.

Additionally, one bead made of malachite (Fig. 21.1c) is among the precious items that arrived in Theopetra Cave at this time. Its vivid green colour is due to the copper oxides that are contained in it. Beads made of malachite are also known from the Late Neolithic settlement of Makriyalos in Pieria.¹¹

Figurines

One clay figurine representing either a human shape or a bear (Fig. 21.2a) is similar to those well known from Divostin in Central Serbia around the same period (5th millennium-classical Vinča 4900–4300 BC). Its hollow interior contains a small pebble that is heard with any movement, possibly playing the role of a baby's rattle.¹²

One more figurine of Balkan origin is made of dark clay with incised dotted decoration on several parts of the body (Fig. 21.2b). It is a combination of a human and animal form and the dots possibly indicate a woolly texture. All four limbs are broken, as well as a part of the far back end. In the area where the head should be, there is no head but the surface is finished and complete and it rather indicates a kind of vase mouth. It is possible that the figurine was attached to a vase as a handle. A similar use is proposed by M. Gimbutas¹³ for a similar figurine from a cult vessel found at Sitagroi.

There is another seemingly unique clay figurine, with a rather naturalistic form (Fig. 21.2d). Its head is completely preserved, as well as one arm and a large portion of the body, but no legs survive and we cannot say if there were any originally. The arms are extended in a cross (one is missing). It has bean-shaped eyes and a bird-like nose. At the back of the head, long hair is combed over the one shoulder like a plait but with no braiding. This is an unusual type of figurine and its shape rather resembles those made of gold from the Balkans (Fig. 21.2e), which are contemporary with the ring idols.¹⁴ Only one figurine, found at Olynthos and dated to LN II,¹⁵ could be of noteworthy similarity (Fig. 21.2f); it also resembles the gold prototypes, in my opinion. This figurine could also work as a handle for the lid of a vase.

Recently, one more item was found among other marble objects, originally considered an acrolith (Fig. 21.2c). It is made of white marble and has a conventionally triangular shape bearing slight peeling on its surface. One end, possibly the bottom, is

narrower while the other, possibly the top, is wider with a semi-circular cutaway between two horn-shaped edges. The one surface is slightly curved, the other flat with two narrow sides along its periphery. This object, totally unknown from excavations in Neolithic Thessaly, is reminiscent of “zoomorphic amulets” from northern regions of the Balkans (Divostin, Rakitovo, *etc.*)¹⁶ and as such it can be included in the group of objects with Balkan origin.

Additionally, another pendant-figurine found in Theopetra (Fig. 21.3a) is similar to one known from the Maliq II phase in Chalcolithic Albania, also from the same period. It was interpreted by M. Korkuti¹⁷ as a representation of a vase. Such shapes of vases are known from Turkey¹⁸ and Bulgaria¹⁹ but not from Greece. Even the style of its incised decoration points towards a Balkan origin.²⁰ Its schematic shape with a spherical belly/body decorated with geometric zig-zag incisions and a long neck/head with a hole for hanging – which relates it to the pendants – represents, in my opinion, the human body in a minimalist way, resembling the metal ring idols that circulate in the Balkans at the same period, a small number of which are also found in very few Greek excavations and surface collections.

One of them, a gold ring idol, was found in Theopetra Cave (Fig. 21.3b) while very few others come from other excavations:²¹ one gold ring idol from Sesklo; two surface finds from Aravissos, plus one more recent surface find from the settlement of Megalo Nisi Galanis at the site of Kitrini Limni in Kozani (Museum of Aiani, Kozani); and a surface find from Thessaly exhibited in the Volos Museum (no. 221, Bastis collection). Further, a whole treasure of such gold objects was seized by the police some years ago and is now exhibited at the National Archaeological Museum in Athens. Additionally, some ring idols made of silver were found at the Diros Cave, at the cave of Evripides in Salamis, at the cave of Amnissos (Irakleion Archaeological Museum, Crete)²² and more recently at the site of Ftelia on Mykonos.²³ Three copper ring idols were found at Makriyalos.²⁴



Figure 21.2. a, b, d. Figurines of Balkan origin, and c. Zoomorphic amulet (all found in the Theopetra Cave); e–f. Comparative items of Balkan origin.

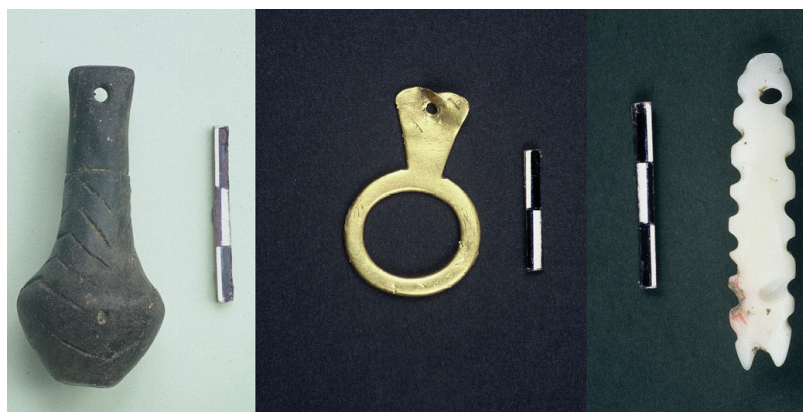


Figure 21.3. Precious items with a suspension hole: a. Made of clay and known from Maliq II in Albania; b. Ring idol made of gold, well known from the Varna cemetery; c. Pendant with decorative notches, made of the shell *Spondylus gaederopus*.

Pottery

Pottery is very limited in Theopetra during this final period of the Neolithic sequence compared to the previous phases. A Final Neolithic decorated pottery group in Thessaly is crusted ware (painted pottery with reddish or white paste added to the surface of the vase after firing). In Theopetra only six sherds belonging to this group have been found. They all have a black slipped and polished surface and are decorated with pink paste. No decorative patterns could be discerned. According to Gallis and Christmann,²⁵ the poor preservation of the crusted ware – which is considered to be a credible indicator of Final Neolithic – is an obstacle to recognising the Final Neolithic phase.

From the non-decorated monochrome assemblage, very few sherds can be classified as belonging to the Final Neolithic based on specific features, such as bowls with rolled rims and relief plastic decorative rope bands, as are known from other cave sites in Greece, like Sarakenos, Skoteini in Tharrounia, Alepotrypa, *etc.* Some non-typical monochrome pottery of small-size bowls with variable projecting attachments and flat vertical handles could also be attributed to this phase.²⁶

An interesting item among the monochrome pottery is the bell-shaped lid of a vase (Fig. 21.4a) made of red-brown clay. Its outer surface was decorated with four vertical rows of plastic studs starting from the top and ending at its periphery (only one of which is preserved). On the top of the lid is a small handle. This type of lid is also known from Sitagroi in Northern Greece, which is much closer to the Balkans, and is dated to the Final Neolithic.²⁷ It is also known from the site of Vésztő-Mágor in East Hungary. Lids with plastic studs are attributed to the Classical Tisza culture²⁸ (early 5th millennium), and are related to ritual activities.

The flint inventory

Similarly, the flint inventory does not produce secure indicators of

this phase in Theopetra that could support the notion of a permanent occupation of the cave, unlike previous phases of the Neolithic.²⁹ However, the presence of a few items made of honey-coloured flint (Fig. 23.4b) – definitely a non-local raw material – are estimated to have also been imported from the Balkans (possibly from the Adriatic coast or the Danube platform, North-East Bulgaria and South-East Romania). And, although they are not typical of this period, they could have arrived as precious goods because of their rarity and exceptional appearance (they were found in the same area and depth as the green malachite bead).³⁰

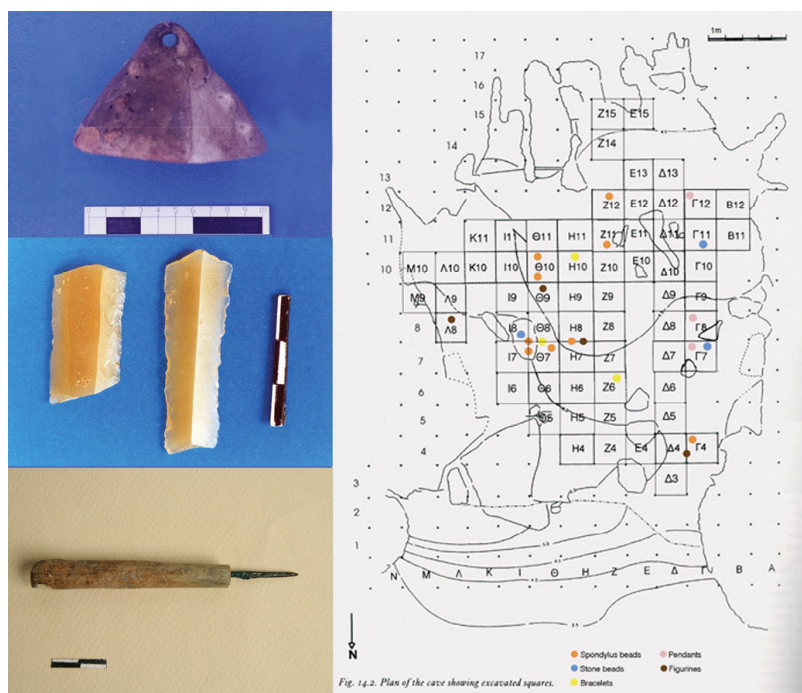


Figure 21.4. a. Bell-shaped lid of a vase; b. Honey flint blades; c. Copper pointed implement incorporated into a long bone; d. Plan of the cave with the excavated squares and indications of the find spots of the objects referred to in the text.

Moreover, we could also take into account a bear humerus

bone with cut marks,³¹ dated to the late 5th millennium (DEM 1968/5441 $\pm$ 30 BP/4350–4240 BC (95.4%). This could be the remains of a food offering from a large hunt.

Discussion

The spatial distribution of the objects described above (Fig. 23.4d) shows a rather random pattern of deposition. A higher density pattern appears for the intersection of the axis Theta (Θ) with that of 7–8, but no exclusive deposition could be supported for these specific areas, taking into consideration the large-scale disturbance in the cave. Some of the implements were found in hearth contexts.

Taking all the above into account, we might wonder what the role of Theopetra Cave could have been at the end of the Neolithic. If the limited number of pottery and stone artefacts are indicative of a restricted use of the cave at this time, as open-air settlements were already established in Thessaly, how could the presence of several precious objects be explained during the same period in the cave? It is reasonable to assume that having moved to open-air settlements and to ameliorated environmental conditions without the moisture of the cave, the same groups – and possibly even other groups coming to Thessaly from afar – gave the cave a rather symbolic character, an assumption that provides an explanation for the presence of the various prestige objects in the cave at that time.

“Caves were used by humans because they were convenient ... and they were simply abandoned when their use value declined.”³² They have been used by humans for several millennia and under different climatic, economic and social circumstances.

Once they were in use by humans, they remain fixed spots and they continue to have a life of their own.³³ Without exception, the change is from economic to ritual use. Caves initially used for economic purposes became the scenes for ritual activity that may or may not have included human burials. The timing of this

change coincides with other fundamental changes of an economic and social kind.³⁴ This change is probably connected to new economic practices related to different use of land, as new open-air settlements were established. Losing their role as refuges for hunter-gatherers, the caves became, in many cases, places for ossuaries, recovering again the respect for darkness.³⁵ According to another opinion:

changes in the human use of caves during the Holocene resulted primarily from social and ideological changes, rather than environmental or economic ones ... it reflects a widespread sanctification of the cave, as a link between life and death and the rituals associated with both.³⁶

During the Neolithic (ca. 7800–6150 BP) caves in Italy seem to have taken on a special, symbolic significance, as is suggested by the discovery of “special” objects in almost all of the caves known to have been frequented at this time. These caves appear to have been used as repositories for special and significant objects, which can generally be described as “valuables” with high symbolic and exchange values (items imported from afar, perforated shells, sherds of earlier Neolithic periods *etc.*) At other Neolithic cave sites, lithic assemblages often contained relatively high proportions of imported obsidian artefacts. An alternative suggestion might be that it reflects the use of caves as warehouses for exchanged goods. The caves then might be considered as special-purpose communal storehouses and as places for the performance of ritual. Despite their growing significance as ritual and symbolic places and as storage places for material symbols, they certainly kept their economic role (particularly during the later Neolithic) as seasonal base camps or as short-term shelters for small groups of herders, hunters and gatherers exploiting the adjacent wooded slopes of the mountains.³⁷ Their use changed in changing times and they became a kind of a “meeting place” perhaps with religious significance.³⁸ The changing use of caves

depended, apart from other socio-economic factors, on the different geological structures, their topography, their size, their darkness or lack thereof, and is a phenomenon seen all over the world. Caves used as ritual and ceremonial sites are known even from Aboriginal Australia (to instruct boys undergoing initiation and also used for camping by the men and boys), while certain rock shelters were “women only” sites, women’s dancing places, as women traditionally danced naked, and certain shelters provide privacy as they have a narrow entrance. Only 50 years ago the Wardaman people lived in caves during the wet season. Certain caves are sacred mythological sites and are of great significance in Aboriginal religion.³⁹ The role of caves in Maya culture is a function of religious beliefs and ritual practices generated by socio-spatial concepts.⁴⁰ The Incas also considered themselves to have come from a cave site. What the ethnographic evidence makes clear is that the users of caves did not regard them as places in which to discard or leave items. Instead, these sites provide entrances into the earth itself,⁴¹ an entrance or point of return to earth, as a place of worship and fear but also of renewal.⁴²

Accordingly, we could propose a similar model/role for the Theopetra Cave: a group of people (about 43 individuals are recognised in the human osteological material) had a rather settled lifestyle in the cave until the beginning of the Late Neolithic, at which time they must have abandoned the cave as a result of a changing lifestyle derived from new economic factors that had caused a revolution in social life. Climatic reasons cannot be excluded as factors for abandoning the cave either, since big pieces of rock were detached from the roof as a result of erosion caused by long-lasting rains. The quantity of the pottery, the lithic tools and the animal bones enforce the idea of a more permanent use of the cave in previous phases. However, the picture at the end of the Neolithic is completely different: the quantity of the pottery and the lithic material of this phase is dramatically reduced, at the same time that precious objects are present in the cave. Most of

them seem to be the result of exchanges that took place at that period, especially, but not solely, with the central Balkans. The bracelets for example could originate from Dimini on the eastern shores of Thessaly, where they are thought to have been fabricated in a specialised manner involving skill and craftsmanship.⁴³

What was the reason then, that brought these valuable objects to the cave at a time when no people seem to live there? A reasonable hypothesis is that the cave was transformed into a kind of sacred and symbolic place, as a memory of the origin and the survival of humans in old difficult times – a place between life and death, where certain groups of people or individuals would arrive to make their offerings. The cave does not seem to have had a parallel funerary use, as is known from other cave sites in the world but also from Greece, like the Kouveleiki II Cave in Laconia⁴⁴ and Alepotrypa Cave in Diros,⁴⁵ a use that seems more plausible in Theopetra during the Mesolithic period.

The notion that the cave must have served as a sacred place even in later times is reinforced by the presence of a fine copper pointed implement (Fig. 23.4c) incorporated into a mid-sized animal long bone, which still bears traces of the green colour of the copper. ¹⁴C dating on this bone gave an age of 3760 ± 30 BP (2287–2124 BC (82.8% – POZ-53604)). The copper implement itself culturally belongs to the Early Helladic II–III and possibly to the Kastri phase, compared to similar copper items known, for example, from the fortified site of Palamari on Skyros Island.⁴⁶ Its presence in the Theopetra Cave, more than a thousand years after the Final Neolithic, could be an indicator of a persistent myth of the site as a sacred and symbolic place. The same sorts of myths/beliefs still exist today about caves with hidden treasures and secret passages, and are preserved in most people's fantasies.

I would like to close with an excerpt from the work by C. Tolan-Smith and C. Bonsall:

The fact that we can still visit caves used by our forebears over hundreds of thousands of years offers us the opportunity of

sharing in some aspects of their experience, be it a sense of awe, a sense of safety or a sense of fear. There are few ways of feeling more human than to find oneself in a deep cave when the lights go out!⁴⁷

Notes

- 1 Facorellis *et al.* 2013; Kyparissi-Apostolika 1999a; Kyparissi-Apostolika 1999b; Valladas *et al.* 2007.
- 2 Kyparissi-Apostolika 2008.
- 3 Kyparissi-Apostolika 2011, fig. 5.
- 4 Siklosi 2004; Siklosi and Csengeri 2011, figs 4–5.
- 5 Gimbutas 1991.
- 6 Bajnóczy *et al.* 2013.
- 7 Shakleton and Renfrew 1970.
- 8 Todorova 2000; Todorova 2002a.
- 9 Kyparissi-Apostolika 2001, 73–84.
- 10 Wace and Thompson 1912, 86–130, fig.78.
- 11 Pappa *et al.* 2002.
- 12 Gimbutas 1991; McPherron and Srejovic 1988; Tringham *et al.* 1985.
- 13 Gimbutas 1986, 259, Fig. 9.73.
- 14 Makkay 1985 fig. 6; Pernicka and Antony 2009, fig. 7–9, 7–10.
- 15 Nanoglou 2004, 266 ΑΚΦ ΙΙ 290 and 429, 1–8, 1–9, published by Mylonas 1929, fig. 74 no. 8.
- 16 Budja 2003, DP XXX, 115–30.
- 17 Korkuti 1995, 219–20, pl. 94, 19–20.
- 18 Özdoğan 1987, 344, fig. 9a.
- 19 Todorova 1993, 214–15, fig. 203–4 and photos 29, 72.
- 20 Kyparissi-Apostolika 2008, fig. 3.
- 21 Kyparissi-Apostolika 2001, 54–7.
- 22 Dimakopoulou 1998, 15–19, catalogue numbers 3–55. Catalogue number for Diros find 64; 62 for the cave of Evripides; and 63 for Amnisos Cave.
- 23 Sampson (ed.) 2002, 124.
- 24 Pappa *et al.* 2002.
- 25 Christmann 1994, 201–4; Gallis 1992, 222–37.
- 26 According to A. Kaznesi and S. Katsarou who are studying the pottery from the Theopetra Cave, in Kyparissi-Apostolika

forthcoming.

27 Papathanasopoulos (ed.) 1996, fig. 87.

28 Gimbutas 1991, Fig. 3.27.

29 Skourtopoulou 2000.

30 Skeates 1997, 80–3.

31 Photo by Y. Hamilakis and K. Harris, in Kyparissi-Apostolika forthcoming.

32 Sherratt 1984.

33 Straus 1997, 6.

34 Tolan-Smith and Bonsall 1997, 217–18.

35 Gonzales-Morales 1997, 67.

36 Oosterbeek 1997, 70–8.

37 Skeates 1997, 80–3.

38 Czesla 1997, 52–62.

39 Flood 1997, 193–200.

40 Stone 1997, 201–6.

41 Dransart 1997, 215.

42 Eliade 1969.

43 Kyparissi-Apostolika 2001, 143–50; Tsuneki 1989.

44 Kontaxi *et al.* 1989, 21–9.

45 Papathanasiou 2001; Papathanasopoulos 2011.

46 Bonatsos 2015; Chatzipouliou 1997; Parlama 2007.

47 Tolan-Smith and Bonsall 1997, 217–18.

Beyond transition: Tracing eventfulness behind the Middle Neolithic–Late Neolithic ceramic divide

*Stella Katsarou*¹

*“To Nina Kyparissi,
for opening my thoughts ahead”*

Introduction

This paper is reflexive and theoretical; it focuses specifically on material studies, within their overall framework, by interpreting Neolithic clay vessels as things and situating them within the short-scale framework of one’s day or life. It should be linked with the recent critical debate on conventional classificatory theory of the Greek Neolithic because it concentrates specifically on the idea of ceramic change across times of divide and transition. Objects for case studies are drawn from the ceramic vessels excavated at the MN/LN interface in Theopetra Cave.

Recurring cycles of culturalism

We first need to review how long-standing scholarly trends in the Greek Neolithic have formulated a perception of “transitions” as short intervals of transformation alternating with periods of

established culture. This schematic perception of change in the local Neolithic has prevailed throughout all relevant disciplinary volumes.² The segmentation of this period into phases has been the local epistemological response to the broader modern historic-cultural and evolutionary³ theoretical paradigm ever since the dawn of the discipline, as has been recognised by recent critics;⁴ the fate of the Greek Neolithic was indeed predestined. Challenging the core of this concept in 1908, C. Tsountas perceptively noted that some Thessalian prehistoric settlements existed continuously, since “little by little and in due time, possibly over centuries ... the remains of dwellings which have been many times destroyed [were] rebuilt at the same locations.”⁵ Realising the existence of overlapping and interdependent sequential contexts on the small-scale was a very remarkable achievement in early scholarship, which, I think, has gone unnoticed. At the same time, however, Tsountas did not disengage himself from the standard explanation that cultural change was abrupt and instantaneous, resulting from population movements.⁶

In later work by D. Theocharis there was a more conscious shift towards the idea of a long, uninterrupted local *process* which was to be merged with *tradition*,⁷ while G. Chourmouziadis and other recent scholars have expanded this idea to include the *ideologies*⁸ of the Neolithic past. Their thinking, however, regenerated the same, older normativism.⁹ Self-sufficiency was still perceived as systemic; symbolism and practices of subsistence, technology, production and consumption were still interpreted as self-regulatory.¹⁰

In recent years, a huge amount of methodological work has resulted in the detailed documentation and analysis of Neolithic human activity in terms of context and material data,¹¹ but when it comes to archaeological discourse on Neolithic pottery specifically, the examination remains schematic and linear, and the objects are still perceived in terms of predefined packages. The detailed contextualisation of Neolithic pottery is amplified in the

long-term structure, but the slow changes in the short term receive but little attention. Usual arguments on the *continuity* of tradition, *normal* development, *natural* end, cultural *fatigue*, *transformation* and *transition* not only stand as stereotypes of archaeological language, but also illustrate academic obligations, which remain absolutely essentialist. The history of theoretical trends was reviewed at the beginning of this paper in order to demonstrate that this perspective has resulted from a certain epistemic background of the Greek Neolithic, rather than the objective validity of the field data. The practical difficulties involved in using stratigraphic evidence to capture the specific period of time which is prehistory, or the network of activities that shared this same period, constitute, in my opinion, an issue which is false:¹² research questions are situated in a framework and examined without acknowledging the possibility that answers may not be forthcoming.

Admittedly, the processual perspective has broadened our view of Neolithic change from the old, narrow lines of time slotted between demarcated cultural packages that have constantly remained stationary, to slow processes happening across the established boundaries, as can be noted, for example, in the recent topical transitional phases of the Neolithic–EBA I and the MN–LN. “The length of this transitional phase, which is a kind of extension of the Middle Neolithic and includes elements of the subsequent culture that are representative to the subsequent period (the Late Neolithic), cannot be calculated,” stated Theocharis in 1973,¹³ and his words still resonate today. Current scholarship always focuses on the unification of distinct phases across boundaries, as best expressed in Bill Phelps’s words: “there is not such clear or major change of style” as marks the transition between the LN and FN.¹⁴

The reconsideration of clear-cut changes in favour of a gradual transformation, however, in fact constitutes another form of culturalism. Furthermore, the newly favoured term “stylistic hybridity”, which recently became topical,¹⁵ does not necessarily

mean new interpretative horizons. Both concepts still constitute variations of cultural classification, a “compartmentalisation”, as it is called by A. Whittle,¹⁶ which only changes the clear-cut line into a grey zone, albeit a neo-evolutionary variant of the old taxonomic paradigm.

The argument for demographic change has also been updated and now favours the local, long adjustment, thus playing an important role at the forefront of cultural explanations.¹⁷ For example, “a continuous, if not smooth, development is apparent right up to and into the Bronze Age, which witnessed the flowering of a variety of short-lived local wares, and in the latest stages, the impact of external influences,” stated M. Phelps in 2004.¹⁸ It really seems that not a day has passed since the moment Tsountas wrote his words in 1908.

Currently, the main priority is still defining the boundaries of the long, linear Neolithic period in a neo-cultural and neo-evolutionary way, and assessing pottery for periodic, systemic and predictable ideologies.

Blurred pots: Multi-temporal and multi-spatial

I wish to suggest here that any real understanding of the so-called “transitional” Neolithic ceramic phases should no longer be based on their classification as hybrids within a comparative scheme of styles, nor their automatic, causal explanation according to standard models; it should rather begin with that reflection of insecurity that emerges exactly when we deny that any such automatic classifications for pottery actually exist, and when we instead look beyond such classifications for those very specific contingencies that have generated particular events and biographies.

To be more explicit, past examinations of Neolithic pottery constitute a dichotomised research ground whereby a soulless object is used as a reflection of a living subject, and as an essential project of the past occurring at an immovable time. According to

this viewpoint the object is awakened only by exosomatic norms, and not by the Neolithic human who would also be perceived as exogenously demarcated and activated. I will here borrow from the biologist M. Zuk, who advises against misconceptions of stasis even in the field of evolutionary biology, in her book *Paleofantasy*: “there exists no living organism which would ever remain in immobility since it has reached a point of adaptation that is supposed to be self-satisfactory until the point of the next adjustment.”¹⁹ In this context, if we view clay vessels as living stimulants within a social network, the assumed periodic stasis is illusory.

In fact, history has not actually been absent from our research toolkit, but it has been qualified by this kind of formalism and symmetry. On that basis, the Neolithic past of the cave would acquire a non-historical profile, which is formulated on the assumption that the Neolithic occupants were ruled by evolving models of pottery technology and function. Simultaneously, however, the Neolithic past would have a historical dimension,²⁰ one deriving from cultural comparativism, but not from a contextual trajectory.

In order to achieve an interpretive contextual prehistory, we must move away from segmenting pottery into phases and sequencing them vertically, to an in-depth understanding of the vessels’ horizontal articulation. I therefore want to examine every specific action as a kind of snapshot of the daily routine²¹ during which each new vessel was made, and in this way situate vessels within any seemingly homogenous ware group that is described on a large scale. These momentous time-snapshots of the Neolithic should not be viewed as a one-way street, which advanced and culminated in a thriving phase, but then reverted to a stage of decline, as our “Early”, “Middle” and “Late” Neolithic ceramic phasing implies. They are actually located along discontinuous timelines, often random paths of lives lying beyond the grand time. At these multiple instant times the tensions of the person’s

mind, dispositions, relocations of meanings, unpredictable retrogressions and discontinuities are inscribed onto the vessel. The full biography²² of each ceramic vase, its object story and object life, would have embodied such instances, beginning from the context of its formation, and then continuing on throughout its contexts of use and deposition. The periodic time of the Neolithic vessel is an articulation of such spotted times. As L. Foxhall points out,

every context is an aggregate of small-scale, short-term acts performed in the course of everyday living: we look at that aggregate and interpret it as a unified long-term process. In the end, that may well be correct at one level. But it is dangerous to make that interpretative leap without examining the micro-contexts in which the data were generated.²³

Since I am not focusing on the Neolithic potter as a person reflecting past norms, neither do I focus on the very material of every *thing*, as T. Ingold prioritised.²⁴ It is by “thinking *through* things” that this paper takes its stance,²⁵ by exploring the influence of various theorists in favour of the rise of the *thing*.²⁶ Indeed, M. Holbraad revises his stance to improve his emancipatory perspective and become more pragmatic than the above mentioned scholars, whose approaches are decidedly humanistic.²⁷ This paper advocates a twofold approach: how *people* made things in the cave of Theopetra, thinking and acting through them, and how *things* made the people of Theopetra think and act and make *more* things; and, finally, I argue here for the complication of both parts of this approach and reassess the different avenues that this “return-to-things” trend has travelled.

Overall, my focus is on humans and pots from the cave as interrelating within the contingencies. Thus, I stress temporality instead of separating the individual and the ceramics, and also the episode of their very eventual *entanglement* – to evoke I. Hodder’s latest title – which has shaped both. This circumstantial synergy

between “practitioners, tools and materials,”²⁸ but also time, space and innumerable other factors, increases the dynamic of peoples and things. As A. Whittle points out,

people cannot be reduced to single dimensions, because they existed inescapably in a complex web of routines, socialities and networks, relationships with animals, things, pots, memories and attitudes to the past, and sanctioning values created by the shared moral community.²⁹

These interacting parts were rearranged and enriched in every new engagement.

Space and time are utterly dependent on this context and are not linear either. The timeline of any pot is not a predefined course from conception to production and consumption. As argued above, it includes inconsistencies, setbacks, delays, accelerations, abandonment, contemplation or indecision. As time is more than just a single line, so the space for each vessel in this context is more than just a single spot. The spatial occurrence of the vessels is not “monadic,”³⁰ regardless of their very specific stratigraphic connotations. The pot would not always have been in that particular spot in the cave where it was found. As happens with time, each ceramic vessel is merged with every space which it occupied. These different contexts and places all transcend the one, final geographic location of the last context, and relate to the multiple individual and inter-individual discontinued routes that this specific pot traversed.

Thus, in this article, I foreground the conception of each ceramic vessel from the cave as the assemblage of minds and bodies, times and spaces, subjects and objects, humans and things, and ideologies and praxes.³¹ Ceramic vessels exist as partners³² and generators of ideologies, thus constituting and reconstituting the personal and social lives of humans. The vessel and the potter are not two autonomous entities, but one permeable unity of discourse, where both parts, the person and the pot – “the

immediate other,” as noted by A. Gell³³ – are seamlessly communicating.

In conclusion, I want to argue here that the ceramic vessel is a complex terrain, and to challenge the MN/LN pottery shift at Theopetra with this vision of a fluid ceramic landscape, which is random, instant and drastic, narrated instead of described, and not a representation of endorsed aesthetic and technological properties nor a symbol, a mimetic exercise, nor a simplified phenomenological description speaking for a recurring modernity. I urge us all to empower past ceramics with the breadth and depth of the *plasticity* of real human life and its meaningfulness, as contrasted with the immovable time of culture and the essentialism of transition. I borrow the term “plasticity”, not from the current international bibliography of anthropology,³⁴ but (referring to our local scholarly roots) from D. Theocharis,³⁵ who used the term as early as 1973, with a perceptive vision for the future of the discipline.

A sherd-by-sherd story at Theopetra

I want to put the following self-reflective considerations forward emphatically, as I have personally reached a nodal point in my perspective on the MN-LN transitional pottery from the cave of Theopetra in Western Thessaly.³⁶ Specifically, the contexts investigated along the south (entrance) and western periphery of the cave revealed a long, undisturbed sequence of occupation deposits dating from the EN through the advanced stage of the LN (Arapí phase), including a very noticeable MN/LN boundary of abrupt stylistic change. With a closer look, however, it is clear that some of the modification choices that characterise the black and gray burnished monochrome styles, typical of the earliest LN, had first appeared in the course of the MN alongside the standard red painted and monochrome groups of this period.³⁷ On account of frequency of numbers per context, the firing of black or dark surfaces was indeed common throughout the EN and MN phases of

the cave, long before it became the major trend in the early LN.

Red monochrome varieties that are reminiscent of the MN styles also occur during the LN, after the supposed point of transition. More than that, in both periods the supposedly unfit new and old features would occasionally appear on the same vessels. For example, when firing did not result in a completely black vase in the MN, more often it resulted in the reduced firing of one side, dark background, even a grey/black firing cloud or only the black core of a red monochrome or red painted vessel, before complete grey and black burnished surfaces took over entirely in the beginning of LN. At other sites, D. Theocharis³⁸ and K. Gallis,³⁹ for example, have also argued for the local evolutionary continuity of the Neolithic based on the uninterrupted sequential shift from the MN red monochrome to the LN grey and black monochrome. A similar argument for continuity, based on a statistical frequency analysis of styles by stratigraphy, has been recently published about Kouphovouno.⁴⁰

In the LN, the bilingual vases featuring one black and one red side, existed alongside fully black or grey imports from specialised manufacturing and distributing centres of North-East Thessaly, or their local imitations.⁴¹

However, for the reasons discussed above, addressing the MN/LN pottery interface of Theopetra as only part of a taxonomic evolutionary issue would involve a lack of interpretive vision about the actual potter or clay vessel user who had lived a certain lifetime in the cave. I am, therefore, standing at a crossroads, trying to find that new, probably ambitious, route which will lead me to explore the specific vessels from the MN/LN interface at Theopetra as a dynamic material field in the context of life history, and localised and instantiated actions, rather than as a bounded descriptive and dogmatic group of data in a generic phase framework.

For this reason, the traditional typological scheme is disrupted here in order to challenge it. The solid stability which supposedly

immobilised the red monochrome groups in the course of the MN is called upon to update its classificatory properties by demonstrating that it is constantly being formed. As shown by the merged aesthetics long before and long after the “stylistic shift” from the MN red styles to the LN dark and black monochromes (Fig. 22.1), it is not that a cultural onslaught occurred at one single point of transition, or a technological package produced *per se*. Rather, it is the result of the intuitive manufacturing of a flow of potting practices within the local MN ceramic tradition of Theopetra, which disrupts our taxonomic divides via the overlapping of styles on the same pot. Following this train of thought, the vessels from the MN are viewed here as accumulated values and powerful stimulants in the everyday routine of the occupants.

Capturing the potential stories of these enterprising and stimulating moments is but a tentative exercise since we risk putting across a false message and placing importance on “*what* we understand” rather than “*how* we understand”.⁴² It is, however, a useful tool for exploring historicity and is addressed here as an experimental, cautious and courageous approach.

In some MN vessels, this black or grey reduced firing of the core may have even been visible or exposed to the surface, if the red slip was not adequately thick or had peeled off (Fig. 22.2). At some point, the agent may have been the black or grey firing cloud. If one vessel was unintentionally made in this way, another may then have been deliberately fired, if the potter chose to pursue the autonomy of this particular feature of colour with the appropriate management of technical knowledge and expertise.

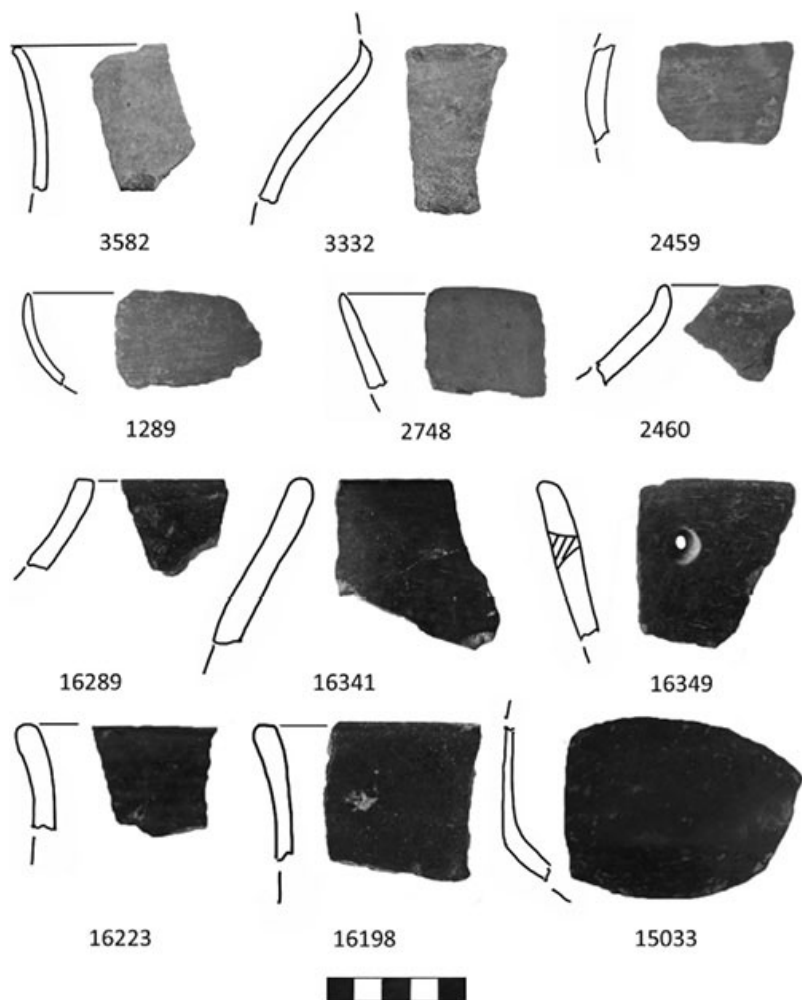


Figure 22.1. Theopetra cave. Middle Neolithic complete red and Late Neolithic complete black vessels.

The colour difference or contrast between the sides of the vessel, particularly in terms of red-black and outside-inside combinations in the MN ware, is a very dynamic field for a personal touch. Technically, the firing task involves the regulation of oxidising and reducing temperatures in relation to the arrangement of the vessel inside the firing pit. It is obvious that the broad range of firing conditions during the period, even since

the EN, resulted in a vast number of dark/grey/black colours and hues combining with red as a result of the personal creativity of craftsmen handling what they received from tradition, long before the striking stylistic shift of the LN to the fashion of black firing. The differential spread of black and red colours on the surface of LN vessels came about intentionally or by mistake ([Fig. 22.3](#)), and crossed the boundaries of shape (curvatures, base, rims, attachments) on the same side of the pot. When the potter extends the inner black on the top rim band of the exterior red side, the divide between the “inside” and the “outside” is transcended. This selective firing showed that renegotiating the meaning of the “inside” and the “outside” of the vessel was not part of an enclosed episode of prehistory, but the result of small chaotic times of personal challenge. Finally, considering pottery craftsmanship as an open project may equally imply that the same or another potter would make the next vessel a perfectly bright red or fully black again.

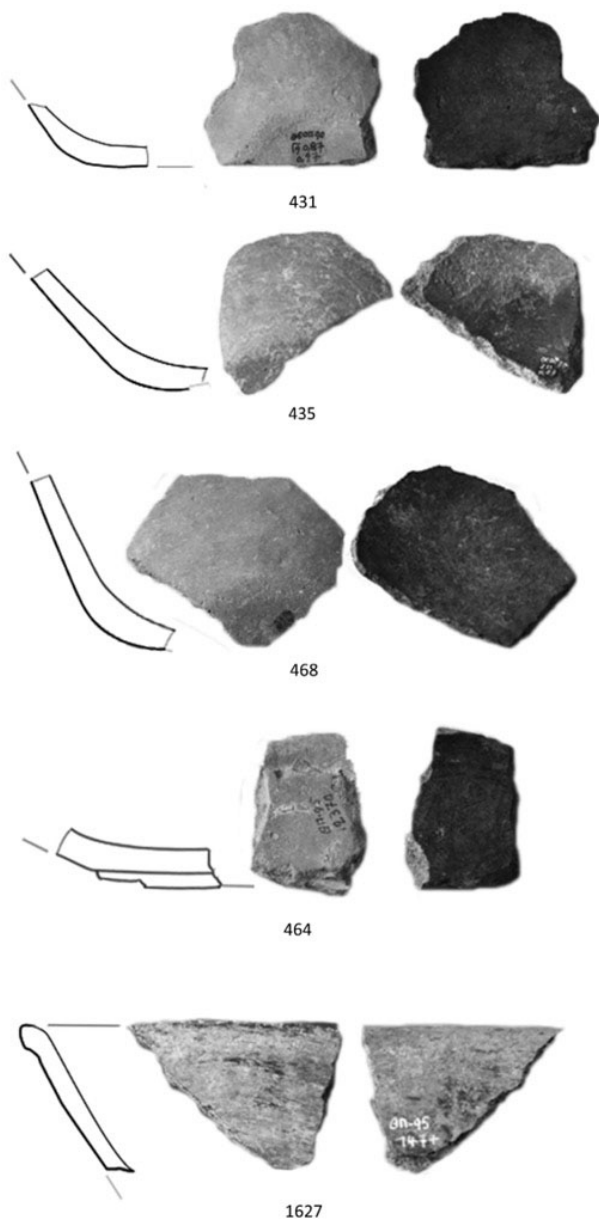


Figure 22.2. Theopetra cave. Middle Neolithic slipped and burnished vessels; (bases) red exterior, grey-black interior; (rim) buff on grey, both sides.

The unchanging chromatic categories and the one-pot-per-category paradigm are disciplinary fallacies. The potter did not demarcate them as a cultural advance or a realisation of the stylistic shift. The craftsman was not bound in a long, processual sequence of tradition, but his actions were constituted by, and redefined aspects of, this tradition, making Theopetra Cave a powerful landscape of pottery craftsmanship. In this flow of actions, the potter of Theopetra was performing these technical tasks as part of an enterprising routine, not a copy of past objects: even if a copy of the vessel was desired, the processes of clay mixing, pot forming, drying, surface slipping, polishing or burnishing, and, of course, firing were not conventional practices but rather self-constituted praxes of remembering, inventing and re-inventing, trying, imitating, choosing or omitting, which maintained a direct dialogue with the material.

Microscopically, this would be a non-sequential avenue to pursue. The dynamic synergy of contextual factors on a personal and social level gives the vessel the historic, active and instant coherence of decisions, experiences and individual and social memories. K. Fowler⁴³ notes that, “the form of things is only ever temporary, though the duration for which they hold that form might be lengthy.” This temporary duration may refer to such personal voices as: “the bowl I have achieved”, “the cup you brought me” or “the jar we have impressed together”, *etc.* Here, I would again recall the insightful words of Theophrastus – spoken in relation to the presence of the Neolithic Urfinis, but applying extensively on pottery wares – “[it] is quite uncertain that it occurred simultaneously everywhere, since these vessels stand for a sort of craftsmanship, *not culture*.”⁴⁴

The vessels of Theopetra as body-story

The corporeal engagement of the cave potter with the clay is a catalyst for qualifying the context of the object on an individual and social level. To paraphrase Z. Crossland,⁴⁵ the body is a

privileged site for understanding the experience of things and creating new worlds through this experience. To quote Whittle, “it is not enough just to suggest kinds of thought and value, as if they occurred alongside patterns of bodily action, and it is also necessary to pay more attention to how those were expressed.”⁴⁶

Pottery craftsmanship⁴⁷ is indeed generated out of a corporeal dialogue, as debated by recent studies.⁴⁸ Here, I want to stress this concept with regard to our present discussion on Theopetra historicising the MN–LN transition: Neolithic handmade pottery possesses sensorial properties of matter, such as visual features and texture and tactile effects that are activated within a personal and social terrain, in the hands, the fingers, the palms, the nails and the potter’s body, along with surrounding sounds, odours and flavours in the cave or outside. Besides the formation, every technical task such as the slipping, polishing or firing is materially experienced and they crucially depend on their relationship with the potter’s body.

Let us remember here, for example, how much the building, treatment and firing of the Neolithic handmade pot is a bodily experience: in terms of colour, the potter can only vaguely see the final result on the pre-fired surface and has to tightly control the placement, firing temperature, fuel and fire, watering, and opening and closing of the pit so that the pot finally acquires the desirable aesthetics. Eventually, pottery becomes a sensorial terrain of emotions, experience and memories. Sterner claims that there were particular body postures for carrying pots in Northern Cameroon which reflected the symbolism associated with the shape and the decoration of those vessels.⁴⁹ Interaction between the potter’s body and the formulated vessel is an experience dynamically inscribed in personal and social memory, and will be recalled in future manufacturing episodes and other shared occasions. Adding to the potter’s appropriations, pottery craftsmanship is a powerful sensorial medium for expanding the community ties, and thus generates mutual understandings and is

transformative on a micro-scale. Pottery changes and transitions are more obvious than as small projects of the very corporeal and social body along the long-term rather than big cultural package replacements at certain points of time.

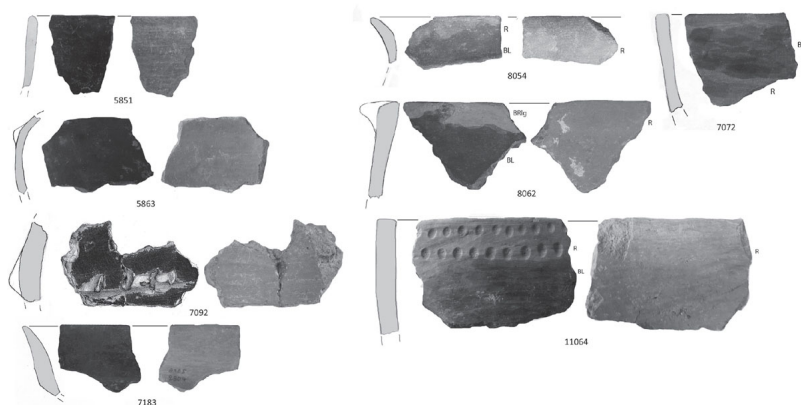


Figure 22.3. Theopetra cave. Late Neolithic slipped and burnished vessels; (left) black exterior, red interior; (right) red top and black body on the exterior, complete red interior.

Conclusions

This paper has attempted to explore theoretically non-linear ways of thinking and acting, which generate non-visible material changes on a large-scale, using the MN/LN Theopetra ceramic stylistic change as an example. The aim was to create a framework for moving away from prescripts of ceramic style and technology, and improving the concept of eventful agency for vessel manufacture. If we adopt this approach, tradition is perceived as a social body of layered memories entering the scene of reciprocal stimulations. The Neolithic then becomes a historicised terrain for the dialectics of agency, structure and body perception, and “the accommodation of the contingent makes human behaviour much more historically informed,” to repeat Kotsakis’s words.⁵⁰

Just to situate our theory in perspective, I only want to hint here at the fact that this project of transforming any cultural

landscape from an atopic and passive terrain of the big culture to a narrated scene of life's temporalities and reciprocal negotiations, and to a fluid zone of social micro-engagements, is absolutely a project of one's present.

Notes

1 I wish to thank the editors of this volume for accepting this paper for publication, and the anonymous reviewer for providing valuable comments that have significantly improved the ideas discussed here. I am very grateful to the director of the Theopetra Project, Dr. N. Kyparissi-Apostolika, for inviting me to study the monochrome wares of the cave and for her constant encouragement and I dedicate this paper to her. Many thanks are also due to Dr. E. Panagopoulou, the deputy director of the former Ephorate of Palaeoanthropology-Speleology of Southern Greece, for allowing me to use the laboratory facilities of the Ephorate for the processing of the ceramic material and for her patience in dealing with the practical difficulties of running an academic project alongside administrative duties. I especially wish to thank Dr. P. Elefanti, who was kind enough to read a first draft of this paper and provide insightful comments. Thanks are also due to T. Korka and V. Arslanidi, who have contributed to practical aspects of this study. Dedicated to Nina Kyparissi, for opening my thoughts ahead.

2 E.g. Papathanasopoulos (ed.) 1996 and Alram-Stern (ed.) 1996 for a detailed overview of Greek Neolithic cultures.

3 Tsountas 1908, 158–234; Wace and Thompson 1912, 13–23, 240–7. For a review of the austere taxonomic concept in the work of Vl. Milošević and succeeding German scholars, see Andreou *et al.* 1996, 539–62.

As indicatively exemplified by the use of phrases such as “progress in material civilization” and “steady degeneration” in Wace and Thompson 1912, 243, 245. The influence of the paradigm is manifest in the tripartite dating scheme of the Neolithic (Weinberg 1947, 174), which follows the universal idea that culture is subject to alternating periods of flourishing and decay.

4 In Greek Neolithic scholarship, the issue was pointed out earlier in Kotsakis 1983, 146, and in his succeeding papers, and most recently

in Kotsakis 2008b, 180. Criticisms have also been put forward in Katsarou and Sampson 2013; Nanoglou 2009b, 292; Tomkins 2009, 125–30.

5 Tsountas 1908, 22.

6 Tsountas 1908, 395; Wace and Thompson 1912, 243 state, regarding Dimini: “A general resemblance to other painted wares in Thrace points to invasion ... Thus the balance of evidence seems in favour of an invasion, or rather a second wave of peoples coming down from the north.”

7 Theocharis 1973, 24–36. See also comments in Kotsakis 2003, 61. Chourmouziadis (1992, 31–6) and Kotsakis (2008b, 177–9) discuss Theocharis’s opposing arguments to Milošević’s explanations for intruders regarding the EN/MN interface in Thessaly.

8 Introduced in the pioneering works of Chourmouziadis 1979 and Kotsakis 1983, and variously re-approached in their later academic works and other scholarship, such as in Kokkinidou and Nikolaidou 1997 and, recently, Nanoglou 2009b.

9 Kotsakis 1983, 7.

10 See critics on the entrenched epistemological trends of the Greek Bronze Age and Classical archaeology within systemic ideologies in Kardulias 1994, 39–40; Plantzos 2008, 253–5; Tartaron 2008, 92–3.

11 Kotsakis 2013.

12 McAnany and Hodder 2009.

13 Theocharis 1973, 79.

14 Phelps 2004, 65.

15 The term became highly popular following its post-colonial reference. See overview in Stockhammer 2012, 52.

16 Whittle 2003, 19.

17 See indicative arguments by Coleman 2011, 28–9; Kozłowski and Kaczanowska 2009, 376 and Perlès 2001, 38–63.

18 Phelps 2004, 65.

19 Zuk 2013.

20 Kotsakis 2003, 55–6.

21 Robb and Michelaki 2012.

22 As described in Kopytoff 1986, 66–8; Hoskins 2006, 78–81.

23 Foxhall 2000.

24 Ingold 2011, 20–1.

25 Henare *et al.* (eds) 2007.

- 26 Gell 1998; Olsen 2010.
- 27 Holbraad 2011, 3–23.
- 28 Ingold 2011, 56.
- 29 Whittle 2003, 166.
- 30 Meskell 2004, 58.
- 31 Malafouris 2008, 26.
- 32 Hoskins 2006, 81–2; Meskell 2004, 50–7; Miller 2005, 35.
- 33 Gell 1998, 17.
- 34 e.g. Hodder 2012, 142.
- 35 Theocharis 1973, 80.
- 36 Katsarou 2000, 244–5; Kyparissi-Apostolika 2000, 187–8.
- 37 See thorough cultural schemes for all three groups in Phelps 2004, 70–6 and 77–85; Douzougli 1998, 60–70 and 89–92.
- 38 Theocharis 1973, 79.
- 39 Gallis 1996a, 121.
- 40 Mee *et al.* 2014.
- 41 For black and gray ware imports in Theopetra and the key export and distribution sites in Eastern Thessaly, see Pentedeka 2012, 47–8.
- 42 Johnsen and Olsen 1992, 420 (their emphasis).
- 43 Fowler 2010, 376.
- 44 Theocharis 1973, 78 (my emphasis).
- 45 Crossland 2010, 389.
- 46 Whittle 2003, 17.
- 47 Ingold 2001.
- 48 Selectively limited here to Keller 2001; Knappett 2005; Crossland 2010, 388; Hamilakis 2014.
- 49 Sterner 1989, 454.
- 50 Kotsakis 2003, 56.

The beast with many heads: Assembling bodies and changing history in the 5th millennium BC

Stratos Nanoglou

Introduction

As many papers in this volume testify, remains of practices that took place between the middle of the 5th and the end of the 4th millennium BC in and around the Aegean are to a great extent elusive, and the same is true when it comes to figurines. There are objects that are traditionally dated to this period, mostly based on typology and inference rather than stratigraphy and context. I will not try to question that tradition in this paper, rather I will attempt to comment on a few distinctive objects that are more confidently placed in this time slot. My main focus will be on acrolithic and multi-headed figures, but I will have to comment on other types as well, to put these two into perspective. It is precisely this perspective I want to offer and highlight, for the actual corpus of published objects has not changed much over the years. Accordingly, I will mostly comment on the same group of objects that were studied by L. Skafida and G. Toufexis 20 years ago,¹ but I hope to provide some new insights based on work done since. These objects have a rather limited spatial distribution and accordingly do not necessarily bear upon Aegean-wide practices.

My intention is to delve into a specific area, so as to bring forth aspects of figurine use that are usually set aside or left unexplored, subsumed under generic headings, such as “Neolithic art”, “naturalism vs. stylisation”, as so on. For the scope of this paper this area includes what is today Eastern Thessaly and Central Macedonia and coincides with the area where pottery of the classic Dimini style is present in great numbers.

Given the dearth of objects securely dated after the middle of the 5th millennium BC and the presence of layers that date to the early 5th millennium BC at the sites from which the objects under study come from, it is perhaps safer to talk about the 5th millennium as a whole and acknowledge that there were in all probability changes within this period and across the areas that are for now impossible to pin down with any precision. Practically this means that on a general level I will subsume the finds from the Dimini and Rachmani phases under the same heading and treat them as a unified block.

Available types

With this proviso, it is time to move to a first description of the available types for the period. For the reasons already stated, it is especially hard to offer much needed statistical data, but it is easy to see that we have a few distinctive types in several sites. The list is by no means exhaustive.

1. Clay figures with plastically rendered legs, usually straight, and arms usually rendered as stubs. Although these can be considered as standing figures, it is probably the case that both arms and legs are there to denote that the body is complete, rather than point to a specific posture.² During the previous phase, the late 6th millennium BC, this type is usually incised and widely attested, but after 5000 BC it loses in relative significance.
2. Clay figures with usually undifferentiated lower part and

arms rendered as stubs. Sometimes these figures bear double or triple heads (Fig. 23.1). This type, minus the multiple heads, is attested before 5000 BC as well.

3. Stone figures with a rounded or pointed lower part and again arms rendered as stubs. They often bear a disproportionally large head; sometimes they are painted. Although some examples may date from before 5000 BC,³ the overwhelming majority of these figures date to the period after 5000 BC.

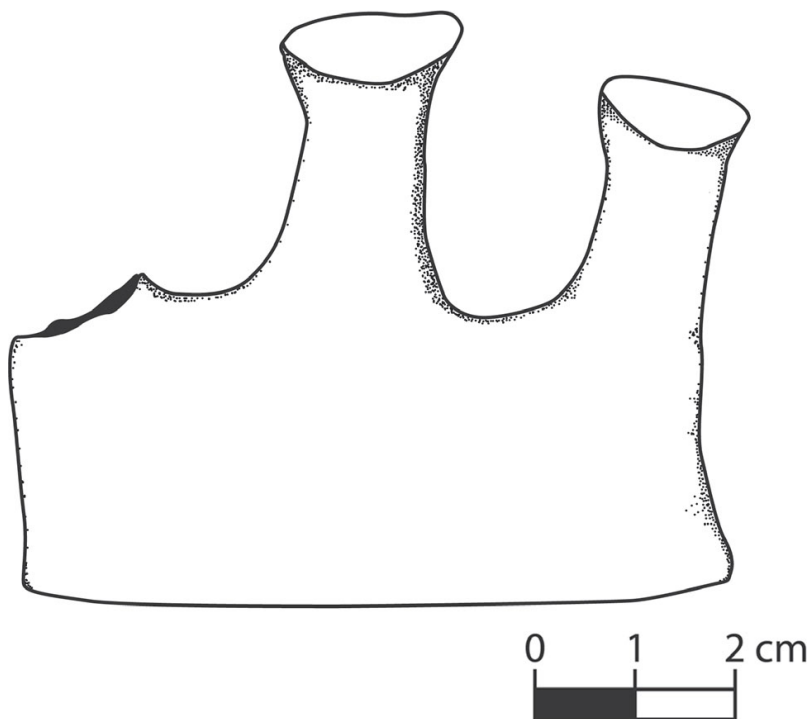


Figure 23.1. Drawing of a multi-headed figurine from Pefkakia (redrawn after Weisshaar 1989, pl. 66.18; reproduced with permission from the author).

4. Figures that combine a clay body and a stone head. Composite figures that preserve both the clay body and the stone head, rather than just one or the other, come only from

Eastern Thessaly, especially from Rachmani and Dimini (Fig. 23.2), where the body is poorly fired and the head is often painted. Well-fired clay bodies with a socket between the shoulders come from a wider area as do stone heads found separately. Like the figures made entirely of stone they often bear a relatively large head. Also like the stone figures, and despite a few possibly earlier examples, they too date mostly from the period after 5000 BC.

5. At least in some sites with classic Dimini pottery there are also vessels with anthropomorphic features and this again is important for putting the few figurines we have into perspective.

As said, it is hard to discern the relative presence of these types in any single site or the whole area of their distribution. Overall the number of figurines is not great: modern controlled excavations, like those at Makriyalos or Pefkakia have produced only a few figurines,⁴ compared with the immense quantities of pottery from the same sites,⁵ especially if projected to the duration of their occupation (500 years for Makriyalos, perhaps more for Pefkakia). Although not a very rigorous or accurate counting method, this view resonates with the picture from earlier periods.⁶ All in all then, with certain exceptions,⁷ figurines were not that frequent in any single community. Contextual evidence, when available, suggests that in most cases figurines were found in secondary contexts, probably part of deposits that come from cleaning operations, but we do know that at least six figurines were found inside House Q in Rachmani⁸ and, even though this is a single case and the report on the context rather generic, it resonates again with earlier practices of assembling figurines in groups. As I have recently argued,⁹ it seems that figurines during the 6th millennium BC were meaningful in sets (rather than individually), they were used on specific occasions and were drawing upon these occasions for their meaning and effectiveness. Although the morphological details and the character of these groupings change

over the course of the 6th millennium BC, it is still the case that a number of them were brought together at specific points. Accordingly, it is not without merit to suggest that the figurines found in House Q may have built on this tradition, although I would not hasten to expand that suggestion to other sites and I will presently offer some qualifications. Based on that and on the limited number of figurines in the period as a whole, it is perhaps worth assuming that figurines were used on specific occasions in the 5th millennium BC as well, not necessarily in groups, even though we are far from understanding what these occasions were about. In other words, their use was probably scheduled and focused, rather than unconstrained and expedient.

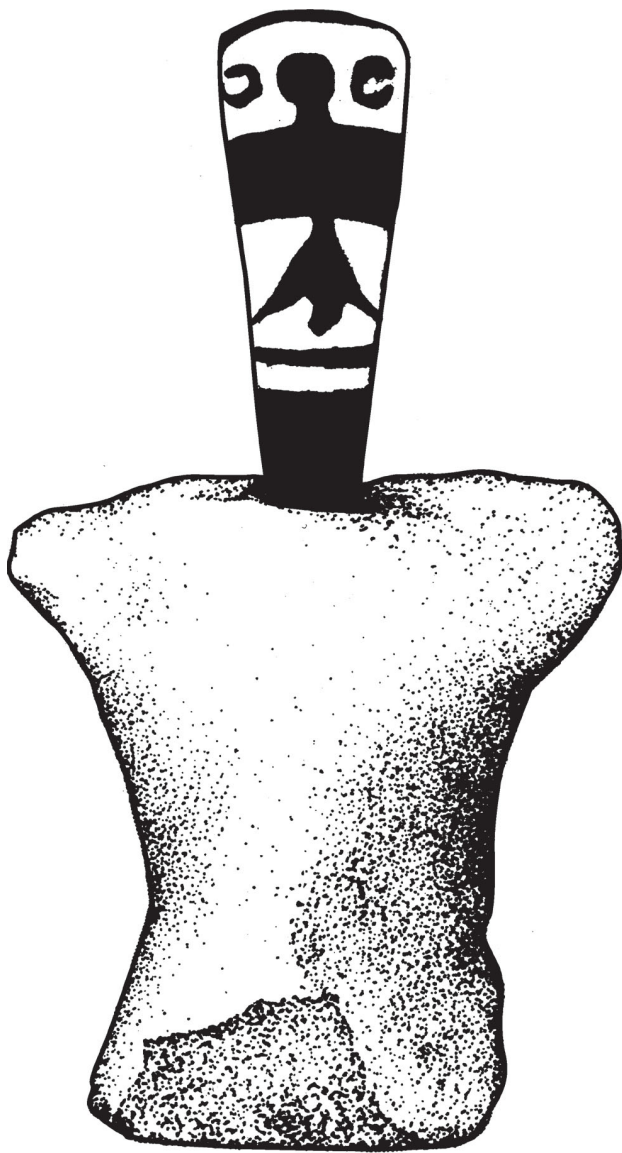


Figure 23.2. Drawing of an acrolithic figurine from Rachmani (after Theocharis 1973, fig. 198).

These points pretty much sum up the major continuities from

the earlier periods; differences are equally significant and interesting. The beginning of the 5th millennium BC sees in certain areas the proliferation of stone and especially marble as a material employed in representing humans, but not animals, which continue to be made in clay.¹⁰ For the moment this seems to be the case with sites that have pottery of the classic Dimini style. In sites like Makriyalos the marble figurines amount to more than half the assemblage in this phase¹¹ and it seems that something similar is true for Dimini as well.¹² In the neighbouring site of Pefkakia¹³ the picture is not as straightforward, because most of the marble fragments come from the head, making it difficult to say whether they were part of a figure made entirely of marble or part of an acrolithic figure. Nevertheless, it is fair to suggest that the presence of marble is strong in Pefkakia as well, and the same is true for nearby Pyrgos.¹⁴ It is also fair to suggest though that in Pefkakia there are relatively more acrolithic and more multi-headed figurines than in the sites I have just mentioned, which may prove to be of chronological significance, although I would not discount the possibility that this is some sort of local issue, provided that sampling is comparable. In any case, both of these types seem to be mostly encountered in this period, although there are earlier examples. What might this mean for the way the inhabitants of these communities conducted their lives? What sort of framework did these figurines build for these people? What kind of people were produced within this framework?

A group already

If we agree that figurines were meaningful as sets, rather than individually, at least in the 6th millennium BC, then the presence of these multi-headed bodies takes on a whole new meaning. It is significant that in earlier Neolithic Thessaly the few multiple figurines we do have render the entire body, rather than just a part of it.¹⁵ This resonates with the dominant trend of depicting the whole body in the Neolithic and especially with the care for

detail that characterises the earlier Neolithic. Contrary to that, the examples we have from the 5th millennium BC¹⁶ have only one pair of arms and do not show any other details, as is true in general for the figurines, and the only distinctive trait that allows for an identification of a multiple body is the head. It is significant that in many of the contemporary figures the head is disproportionate to the rest of the body, thus also highlighting this particular part.

There are many ways to interpret this and indeed L. Skafida and G. Toufexis¹⁷ have suggested that some of the double-headed ones may render a *kourotrofos*. Whether we should be looking for an actual correspondence between the figures and some “reality out there” or not, what strikes me as significant is that in these multiple figures we already have a group, without the need to assemble a number of figures together. These objects are a set from their very constitution. We can discern here the continuance of a major aspect of figurine use and at the same time the re-articulation of this point into something new. For this is a set that cannot be disassembled at will. In this case, as in the whole field of representations as well, we see a slip from a focus on actions – and this also includes the action of assembling these objects in groups -- to a focus on static appearance, the appearance of a group. The action of bringing these bodies together gradually steps back, while the question of what these bodies do, when they come together, is no longer relevant.

The acrolithic figures are by definition composite entities: they are assembled from different and distinct parts. I will not go into detail concerning the distinctive materiality of each of their parts.¹⁸ What concerns me here is that they combine two materials that had been kept separate for a very long time. Stone and clay had been overwhelmingly reserved for different classes of artefacts during the 6th millennium BC: with a few exceptions, stone was not deemed appropriate for the production of figurines, but only for pendants.¹⁹ Accordingly, this is more than just a combination

of materials, to a point where we are entitled to talk about hybrids. But there is another twist in this story and I need to point out something that, judging from the literature,²⁰ seems ambiguous: the heads of at least some of the acrolithic figures were most probably not removable. First of all, the poorly fired clay body would not stand such an act, for it would crumble, and second there are examples where the clay covers the head in such a way that the head cannot be removed, unless the body actually breaks.²¹ Accordingly, the insertion of the head into the clay body would only happen once. If the head was not removable, the association would have been in a way permanent, at least for the duration of its use. Yet again, it seems that the issue here is not the actual action of bringing these two parts together – what matters is that they are together in that figure. Once again, as with the multiple figures, the assembly has already been performed.

The presented past

In both instances, that is bodies with multiple heads and composite figures, the figurines we have are the *result* of an assembling, rather than its constituents. They do not enact an assembly, but rather stand as testimony to that assembly. The action of assembling has already happened in the past, which also means that there is a past that is brought to bear upon the meaning of the figurines. The sets of the earlier Neolithic, with their focus on action, both at the level of rendering figures as active and especially at the level of bringing these objects together, allow for a repetitious constitution of the same scene, of the reproduction of a constant present. Contrary to that, the figures of the 5th millennium BC capitalise on a performance that has already happened.

An interesting point is that in the later 6th millennium BC we witness impressive gatherings of people, animals and objects, including figurines,²² whereas the figures have already moved towards a disavowal of action and a focus on static appearance.

Accordingly, there is a certain discrepancy between what the figurines depict and what they are employed in. In the case of House Q in Rachmani this discrepancy seems to continue after 5000 BC, but as I said this is a single case so far. Overall, we see here the continued antithesis to action that was initiated in the later 6th millennium BC. Some of the figurines may even represent the effacement of gathering practices, as they allocated them to a time past. In a way, there is no need for them to be practised, for what matters is their result rather than the process. What is needed is for that result to be visible, to remain visible, which makes the process susceptible to a whole different kind of commemoration and indeed materialisation, perhaps through narrative.²³

It is no accident that about the same time there is a twist in the way communities handle their spatial visibility. The relation between tells and their ancestry has been extensively discussed, both in Greece and the Balkans,²⁴ but what is significant in view of my argument so far is that the formation of tells before 5000 BC seems to have been a by-product of the practice of rebuilding individual buildings, rather than an intentional activity targeted by the community as a whole.²⁵ Furthermore, the very practice of rebuilding the structures, attending to the same form placed on the same spot, while covering up the earlier remains, instead of suggesting a prolongation of the ancestry of a building, can be rather interpreted as an attempt to stall time, to make things appear as always already there.²⁶ Ideally, one would not encounter earlier remains in tells, but only the “same” houses time and again. People in these communities would always live then in the present and would use figurines to enact that present.

Contrary to that, after 5000 BC certain communities chose to actually form tell-like settlements in the very area that has been the focus of my study, as in Dimini, Sesklo, perhaps Palioskala and possibly other sites. I have named these settlements “pseudo-tells” for they are built on, at times ostensibly, new ground and seem to

capitalise on the emerged appreciation of the ancestry that a tell projects.²⁷ What seems to matter then in these sites is that the community is seen as having a past, that the community is the result of accumulated remains, while the action of producing these remains is projected backwards. Once again, and in parallel to the changes seen in figurines, the actions that resulted in what one is experiencing have already happened.

If the issue is no longer action, but its results, then it seems that communities in the 5th millennium BC were constituted along different principles from the ones before them. Tells are already formed, groups are already formed, different materials are already combined. What seems to matter is a visible, tangible reminder, one that betrays a different relationship to time. In this context, figurines of the 5th millennium BC seem to materialise a distinction between a past and a present, where there was none before then. They provide the framework for a different placement of oneself in history and for the production of people that would turn to their past in order to speak for their future. Whereas in earlier times, at some communities, people were expected to enact a still world, for their life to be intelligible and sanctioned, this time the conditions of intelligibility, the possibilities to live a sanctioned life, were predicated upon the invocation of a past and the way this past was brought to bear upon the world. It is perhaps within such a framework that we should place the conspicuousness of cemeteries in the 3rd millennium BC, where humans themselves are the tangible remainder that is brought to bear upon their present.

Notes

1 Skafida and Toufexis 1994.

2 Nanoglou 2004; Nanoglou 2005.

3 e.g. Gallis 1996a, fig. 22, from Makrychori, dated to the Arapi layers; or three figures from Makriyalos phase I (Nanoglou and Pappa 2009, 251).

4 110 anthropomorphic and six zoomorphic figurines from

Makriyalos phase II (Nanoglou and Pappa 2009, 254); 44 figurines from Pefkakia (Weisshaar 1989), see the catalogue in Nanoglou 2004 for the precise list of objects I count as figurines from Pefkakia.

5 Pappa 2008; Weisshaar 1989.

6 See Nanoglou 2014.

7 See for instance the case of the Sarakenos Cave in this volume.

8 Wace and Thompson 1912, 43.

9 Nanoglou 2014; see also Nanoglou 2008a.

10 Nanoglou 2009a.

11 Nanoglou and Pappa 2009.

12 Skafida 1992; Tsountas 1908.

13 Weisshaar 1989.

14 Batziou 1981.

15 Nanoglou 2005, 150. Examples include figures from Domeniko (Gallis and Orphanidis 1996, no. 148), Prodromos (Volos Museum, M5221, see Nanoglou 2013, [Fig. 18.2](#)) and possibly Grizano (Gallis and Orphanidis 1996, no. 221).

16 Examples come from Dimini (Tsountas 1908, fig. 229), Pefkakia (Weisshaar 1989, pl. 66.14, 16, 18), Rachmani (Wace and Thompson 1912, fig. 28t) and Ayios Georgios Magoula (Skafida and Toufexis 1994, fig. I.8).

17 Skafida and Toufexis 1994, 18.

18 See Nanoglou 2008b for a longer discussion.

19 Nanoglou 2008b.

20 See Talalay 2004, 149.

21 Tsountas 1908, [tab. 36.1](#).

22 As for example in Makriyalos (Pappa *et al.* 2004).

23 Nanoglou 2001.

24 See, among others: Bailey 1990; Bailey 2000; Chapman 1989; Chapman 1997a; Kotsakis 1999; Nanoglou 2001; Nanoglou 2008c.

25 Nanoglou 2001; Nanoglou 2008c.

26 Nanoglou 2012.

27 Nanoglou 2008c.

Part IV

West, Central and South Greece

Demographic transitions from the Earlier Neolithic stages until the first Early Bronze Age settlements in the plains and hill-country of Boeotia, Greece

*John Bintliff and Kalliope Sarri*¹

Introduction

In this paper, we wish to do two things: firstly, J. Bintliff will present aspects of survey methods important for detecting Neolithic and Bronze Age activity in the landscape, together with the broad trend they reveal across the transition between them. Secondly, K. Sarri will present some of the material we used to construct our diachronic maps.

J. BINTLIFF

The Valley of the Muses and Askra (Fig. 24.1)

This was an early intensive survey, 1982–4,² focused on site discovery, and with only rare collection of diagnostic offsite pottery. Thus, the prehistoric maps (Fig. 24.2) are biased towards prehistoric sherds found during gridding of more obvious Graeco-Roman and Medieval sites.

Nonetheless, after a single findspot on an elevated hillside in

the earlier Neolithic period, a clear expansion of settlement occurs across the Final Neolithic–Early Helladic (FN–EH) divide and this proceeds further with the full Early Helladic period (not shown here).

Thespieae town and country (Fig. 24.1)

The city survey was carried out in 1985–6,³ the rural survey between 1989 and 1991.⁴ Although site-focused, a larger sample of offsite pottery was gathered. Nonetheless, all the sites discovered were due to their abundant historic ceramics.

However, when analysing the rural hinterland to the south of ancient Thespieai (the lower right are in the inset in Fig. 24.1), we became convinced by 1999 that small numbers of prehistoric sherds and lithics found while gridding the historic sites in this district, together with similar scatters found in the offsite transects, were often vestigial small occupation foci, as well as taskscope field activity traces (Fig. 24.3). This led to our controversial FN–EH Hidden Landscape thesis.⁵ The main explosion of small sites and activity in this landscape proved again to be FN–EH.

The urban survey of Thespieae city itself, some 180 hectares, provided another test case to detect pre-urban prehistoric activity since some 15,000 sherds were collected from a large grid (Fig. 24.4).⁶ Earlier Neolithic activity was again highly focused by a small river plain on and around the Thespieae Magoula. In FN–EH times the finer detail now available for this small landscape reveals a dramatic explosion of activity, probably reflecting short-lived small farms, across the later city site, paralleling the trend suggested in the far lower sample of finds from the wider area of countryside to the south just discussed.

However, our analysis of the city survey data gave a severe warning regarding the effect of sample size in landscapes and on sites with dense historic ceramics: the next illustration (Fig. 24.5) correlates the size of the collection from each city grid collection

unit (numbers on the left axis, in blue) against the recovery of prehistoric sherds (numbers on the right axis, in red). It turns out that samples of less than 30 sherds have little chance of including prehistoric finds owing to sample error.

Hyettos town and country survey (Fig. 24.6)

Although carried out between 1989–92, the urban and rural survey at Hyettos⁷ benefitted from far higher collection strategies in both the city survey and in its northern hinterland compared to the preceding two case-studies.

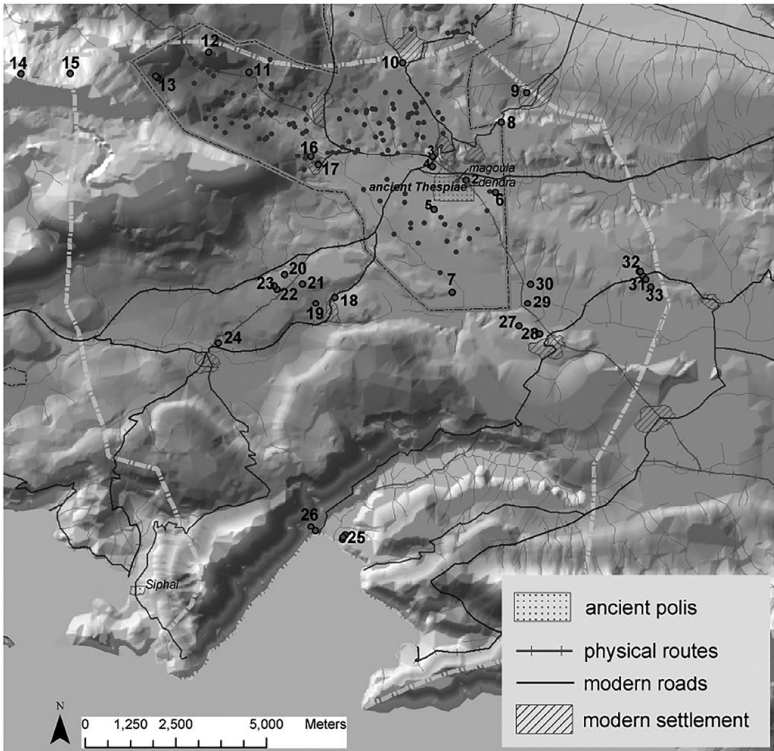


Figure 24.1. Surveyed sites in the Valley of the Muses (inset shape left limb) and the hinterland of ancient Thespias city (right upper and lower parts of the inset shape). From Farinetti 2011, Ch. II.3.9 Fig. 3.

Once more however, millions of historic sherds litter the entire

landscape and obscure easy recognition of prehistoric sites and other activity foci, and again all the sites recognised by fieldwalkers were dense historic concentrations.

Nonetheless, the large city collection, combined with high collections from the historic sites and from the intervening offsite, could reveal a rich prehistoric landscape (Fig. 24.7) running under the later city, the historic rural sites and across the open land between them. The earlier Neolithic finds focus on the later acropolis and in the main valley bottomlands, while predictably the FN–EH era sees a wider expansion across the landscape.

Conclusions from the surveys

Survey methods must be hyper-intensive to reveal the complexity of prehistoric activities in rich historic landscapes. The overall Boeotia picture conforms to the Sherratt and Johnson model,⁸ with earlier Neolithic settlement and land use in southern Greece focused on riverine soils suited to intensive hand cultivation, accompanied by much rarer hilltop sites perhaps for ritual or defensive use. In FN–EH times the impact of the ard plough, animal traction and the wider spread of the Secondary Products Revolution gave rise to an explosion of sites across the whole landscape and caused a far more dispersed settlement pattern to develop.⁹

K. SARRI

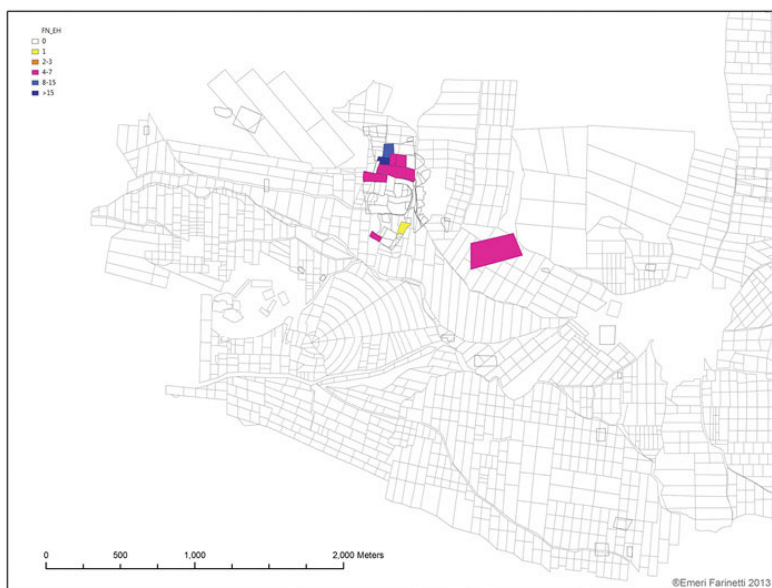
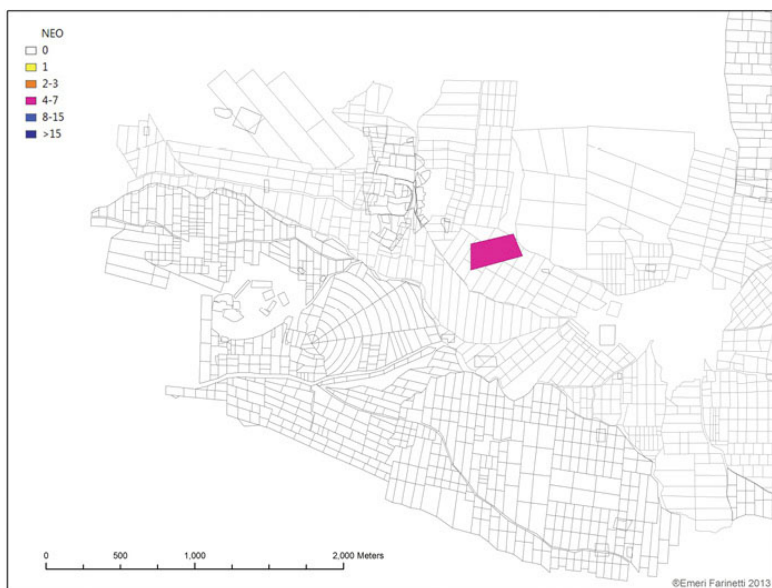


Figure 24.2. Distribution of earlier Neolithic sherds from the Valley of the Muses (upper) and finds from the Final Neolithic-Early Helladic phase (lower).

The pottery evidence

All indications for the existence of FN settlements in the areas of our Boeotian surveys derive exclusively from the ceramic evidence. Apart from this, a limited number of chipped stone tools have been collected but they don't supply very useful information for dating. The ceramic material discussed in this paper focuses on the period from the final phase of the LN period onwards. It does not include the earlier LN stages characterized by the painted and the black-burnished pottery of the Greek mainland, which is also attested by a smaller group of finds collected at some major prehistoric sites of the survey, namely Thespieae, Hyettos and Ayios Konstantinos, a site in the vicinity of Tanagra.

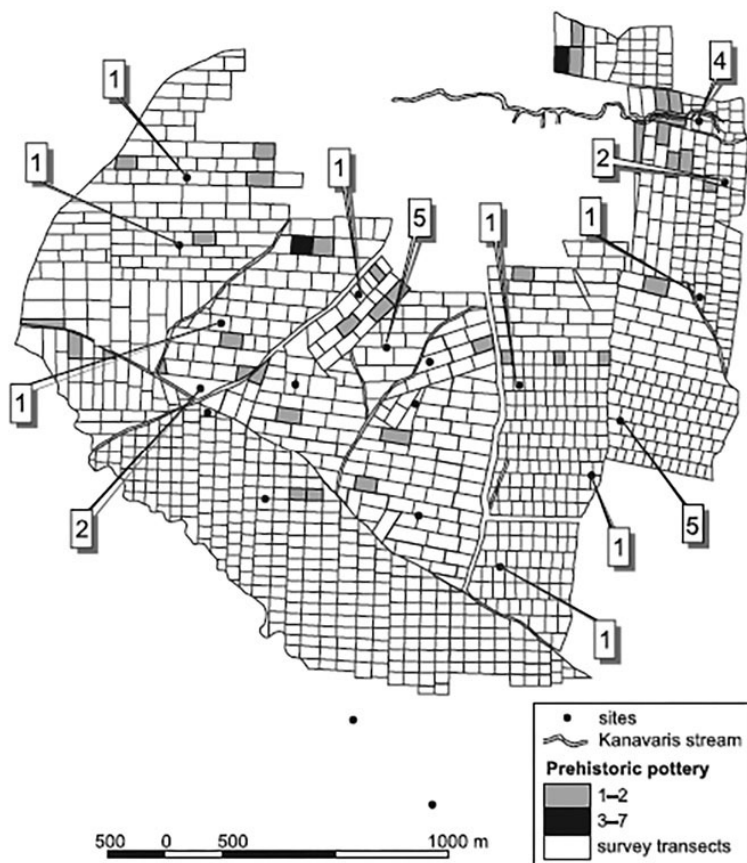


Figure 24.3. Small scatters of prehistoric pottery on historic rural sites (boxes with finds numbers) and in offsite transects (greyscale) in the southern hinterland of Thespieae survey (from Bintliff, Howard and Snodgrass 2007, Fig. 9.1a).

The Boeotian Final Neolithic has not been adequately studied and there is not enough comparative material available to help us overcome the limitations and dating problems that usually accompany surface finds. Studies of excavated FN pottery come from Thebes and the Sarakenos Cave.¹⁰ The petrographic analysis of the Theban pottery is the first scientific insight into the Later Neolithic pottery production in Boeotia, while the Sarakenos Cave offers rich stratified material useful for chronological observations of our surface finds.¹¹ These comparisons show that the vast majority of the Neolithic material represented in our survey areas belongs to the later LN and FN stages and comprises mainly coarse, plain, red-slipped and relief decorated wares, and it seems to reach the beginnings of the EH I period.

First evidence from the Tanagra area

The first indications pointing to the FN period appeared in the wider area of Tanagra, particularly at the sites TS 14, TS 17, TS 39 and at the site TS 18 situated on the hill of Ayios Konstantinos in the Asopos valley.¹² In the city of ancient Tanagra only one, but very interesting, pattern-burnished fragment with a discoid knob has been found (Fig. 24.8.6).¹³

At the sites TS 11, TS 13, TS 17 and TS 39 we observed an absence of previous habitation, a fact indicating a range of new installations during the FN period. At sites situated on the banks of tributaries of the Asopos, this is the only phase of occupation identified, showing that these were abandoned at the end of the very early phase (EH I) of the EBA period. The site of ancient Tanagra and the hill of Ag. Konstantinos were inhabited also during the earlier Neolithic phases, as a handful of Neolithic

sherds show. In the broad investigation area of the Tanagra surveys two types of LN and FN period settlements – sometimes with a short distance between them – have been observed: one situated on the low banks of the Asopos river sometimes cut by it and one on high, naturally fortified places (Fig. 24.9).

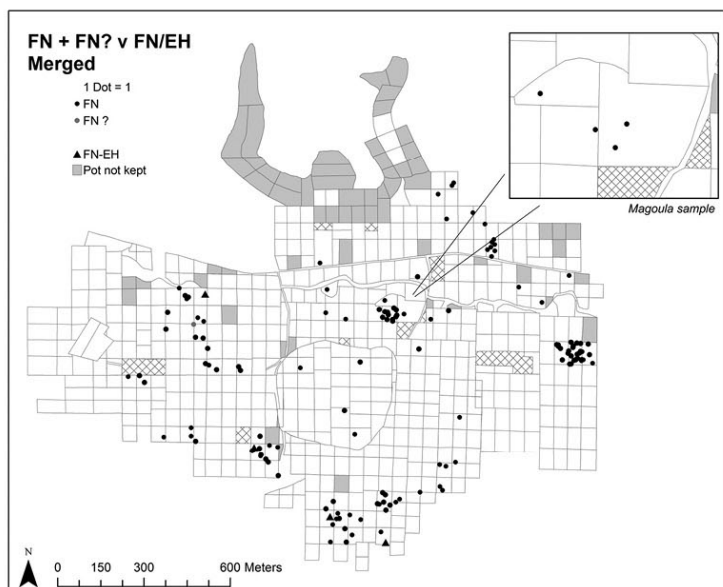
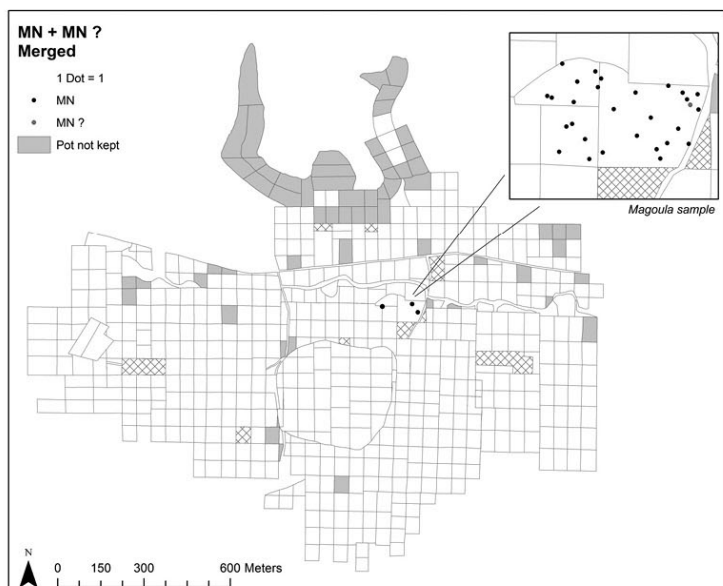


Figure 24.4. Middle Neolithic (upper) and Final Neolithic-Early Helladic sherds from the Thespiee City survey.

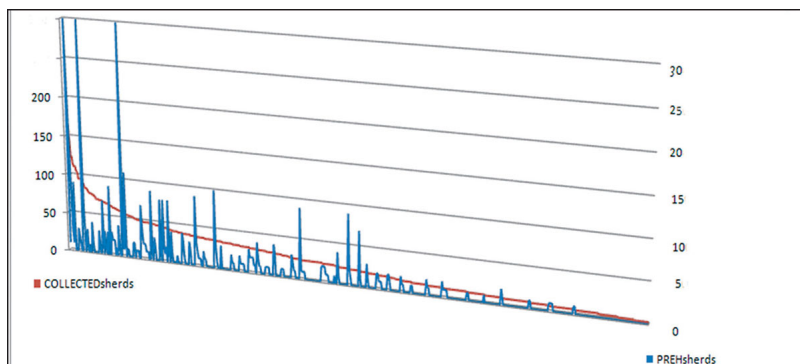


Figure 24.5. Correlation between the total number of sherds collected per grid (left axis numbers and the red line) and the number of prehistoric sherds (right axis numbers and the blue histogram) for the Thespieae city survey.

Identification and dating

The dating of these finds was puzzling due to the lack of appropriate comparanda from Mainland Greece but also due to the nature of the finds which were – in terms of manufacture, typology and condition – less diagnostic. This pottery group did not fit into any other period; it was solid, numerous and not very dispersed in space but always localized in homogeneous concentrations. It seemed carelessly made, coarse and brittle, fired at moderate temperatures, and with porous and slightly smoothed surfaces often covered with a thin reddish coating. The clay contained much sand, small stone or large lime and white marble inclusions. Some typical FN shapes appeared, such as bowls with inturned or rolled rims (Fig. 24.10.1), vases with thin upright sides, and large storage jars with relief decoration imitating rope, either as horizontal bands below the rim or as curvilinear bands covering large parts of the body. Among the finds there is a peculiar ceramic fragment that may be reconstructed as a handle of a pan-like vessel or a part of a very abstract modelled figurine (Fig. 24.10.5).¹⁴

Final Neolithic finds from the older Boeotian surveys

The FN ceramic groups identified in the area of Tanagra have been subsequently encountered during restudying the material from the earliest surveys in Boeotia.¹⁵ The areas of the Valley of the Muses, the city area of Thespieae and the nearby Magoula, the ancient city of Hyettus and its surrounding area have yielded concentrations of coarse plain and relief decorated wares dated to the Final Neolithic period.

The Thespieae valley

In the Thespieae Magoula, the presence of FN findings is more pronounced than in other areas, with a very important Neolithic site¹⁶ within the ancient city and next to the Kanavaris stream (Fig. 24.4). Whereas in the main area of the Magoula, LN painted, polychrome and black burnished wares are abundant, in the surrounding area the only pottery groups found are the FN coarse wares, scattered with a dispersed pattern over the surrounding low hilly landscape (Fig. 24.3).¹⁷ Among the chronologically distinctive features represented are small vertically pierced lugs (Fig. 24.11.2) and plastic knobs and bands which are placed horizontally or vertically and sometimes decorated with plastic decoration of impressions or incisions (Fig. 24.11.1, 3, 5–6) imitating rope patterns.¹⁸

The Valley of the Muses

Askra is a site with strong activity during a long period of the Bronze Age, and field 39 in particular is the place with the greatest concentration of FN finds (Fig.24.2 lower, uppermost focus of finds). In a rich but typologically not very distinctive assemblage of FN coarse pottery, a group of well dated sherds, some of them with impressed dot decoration placed on the body or on the handles has been identified (Fig. 24.12). This decoration

shows links to the material from Kephala on Keos and to the LN Ib phase of Kastria.¹⁹ The most characteristic feature of this assemblage was the traces of vegetal inclusions. Some peculiar shapes have been observed such as a triangular flat handle with decorative incisions on the edges (Fig. 24.13.1).²⁰ The material from Askra shows a gradual transition from the FN to EH I period, since FN coarse fabrics seem to acquire the EH I shapes, such as bowls with inturned or funnel rims. At the site VM 4, which also yielded fairly rich Bronze Age evidence, there were likewise samples with features dated to the FN (Fig. 24.13.2). Here, as well as at Neochori (Fig. 24.13.3-4), a site at the SW edge of the Valley of the Muses, we localized examples of coarse wares with plastic and incised decorations (Fig. 24.13).

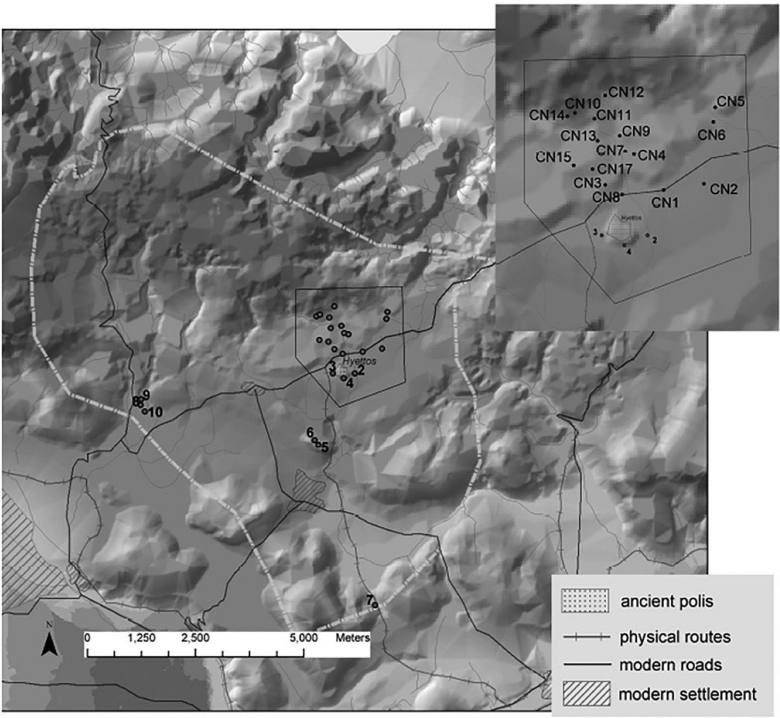


Figure 24.6. Location of the surveyed ancient city of Hyettos and the area of adjacent countryside intensively-surveyed (from Farinetti 2011,

ch. II.3.5, fig. 2).

Onchestos

Near the site of the ancient town of Onchestos at the southernmost edge of the Copais plain, where a large amount of surface EH pottery has been collected, many examples of FN ceramics have been found (Fig. 24.14). Typical FN examples are the fragments of large open bowls with a series of plastic knobs placed on the rim (Fig. 24.14) providing striking parallels with the distant Petromagoula-Doliana group.²¹ As in the case of Askra, Onchestos showed a smooth transition to EH. This is shown by the abundance of pithoi with rope decoration, bowls with incurved or flaring rims or upright sides now made using the red-slipped or even Urfirnis manufacturing technology.

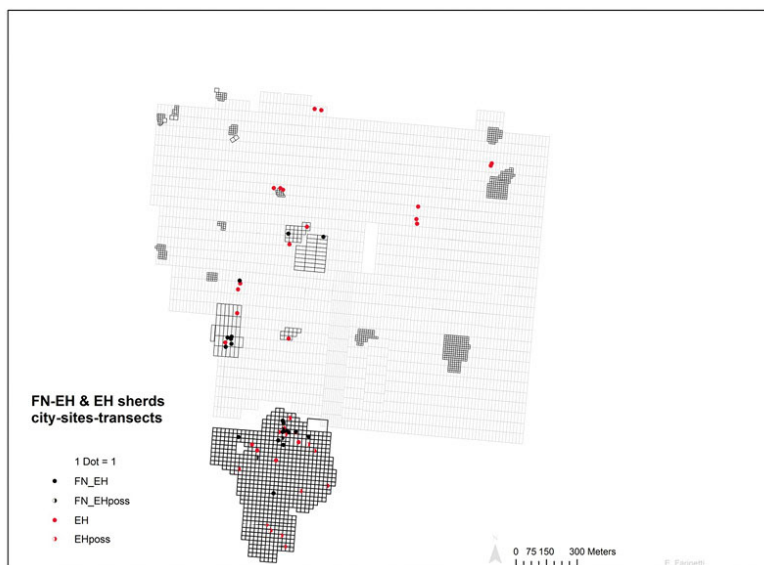
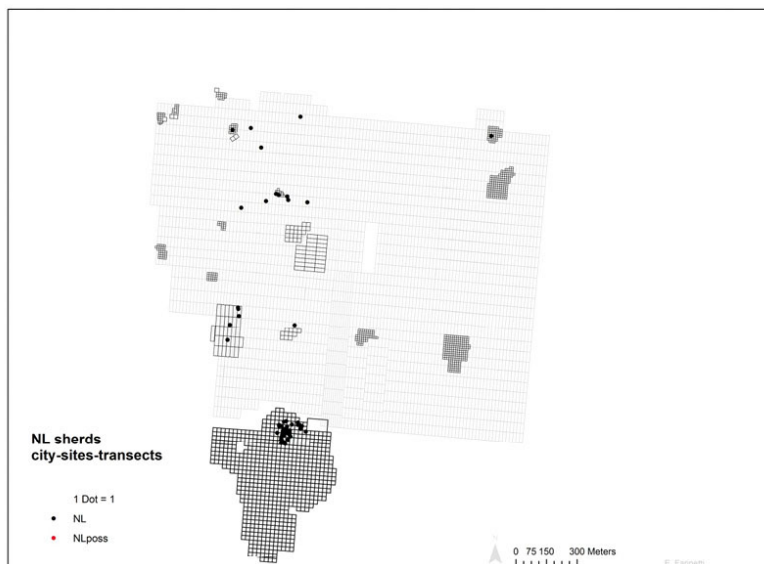


Figure 24.7. Distribution of earlier Neolithic (upper image) and Final Neolithic-Early Helladic (lower image) sherds from the Hyettos city grid (base of images) and the rural areas to its north. Rural sites are darker grids, offsite transects the underlying quadrat blocks.

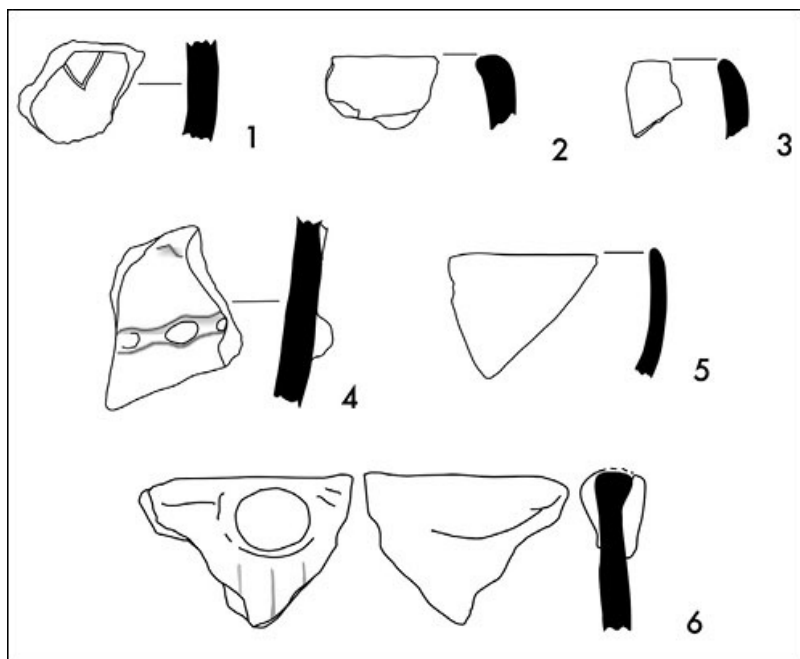


Figure 24.8. Tanagra and TS 39. Scale 1:2.



Figure 24.9. Tanagra FN sites TS 17 and TS 14.

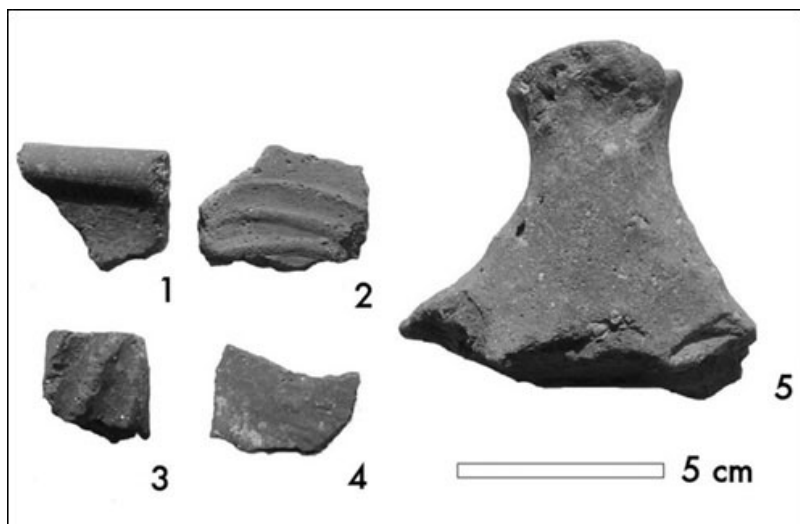


Figure 24.10. Tanagra. Red-slipped fragments from TS39.

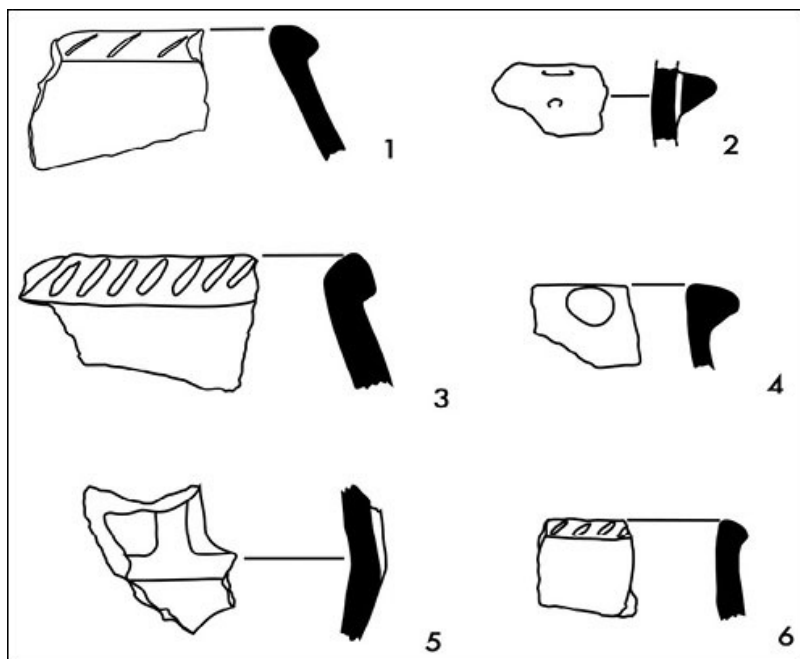


Figure 24.11. Thespias Magula and area. Coarse FN pottery.

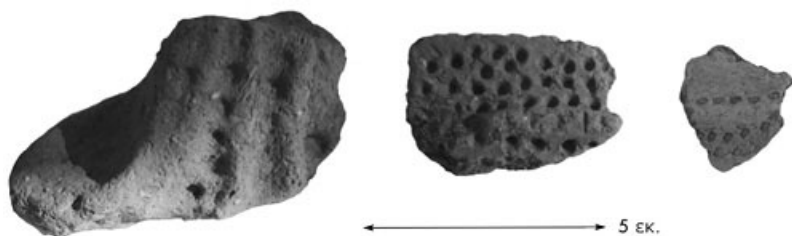


Figure 24.12. Askra. Sherds with stitched decoration.

Hyettos

A very useful observation made during surveying the area of Hyettos was the discovery of a dense concentration of FN ceramics in a restricted area around CN 3, a major historic and prehistoric site (Fig. 24.6).²² FN pottery was found at the main site together with rich remains of all Bronze Age periods but also at nearby sites situated a short distance away, showing an intensive habitation pattern with small satellite settlements of rural character.²³

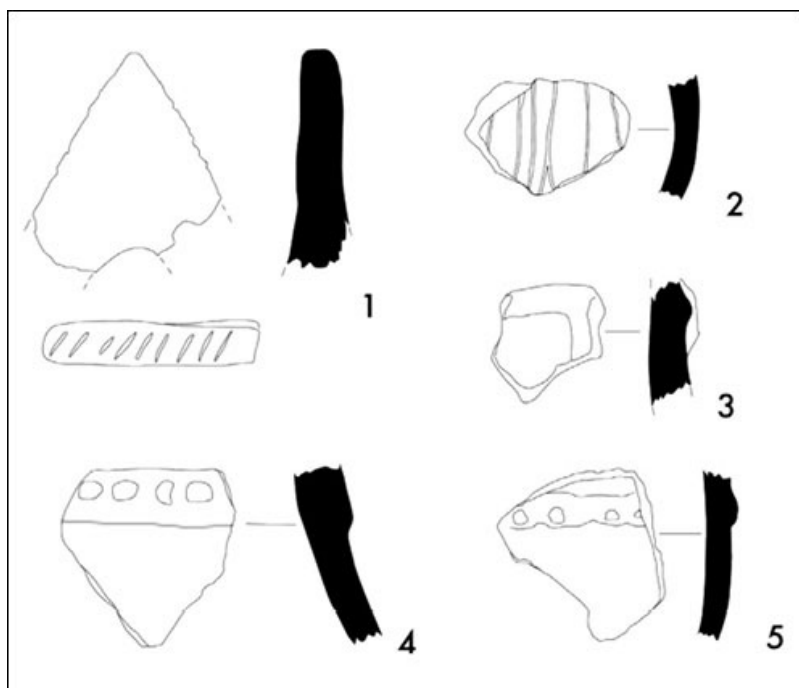


Figure 24.13. Final Neolithic pottery from the Valley of the Muses, Askra and Neochori. Scale 1:2.

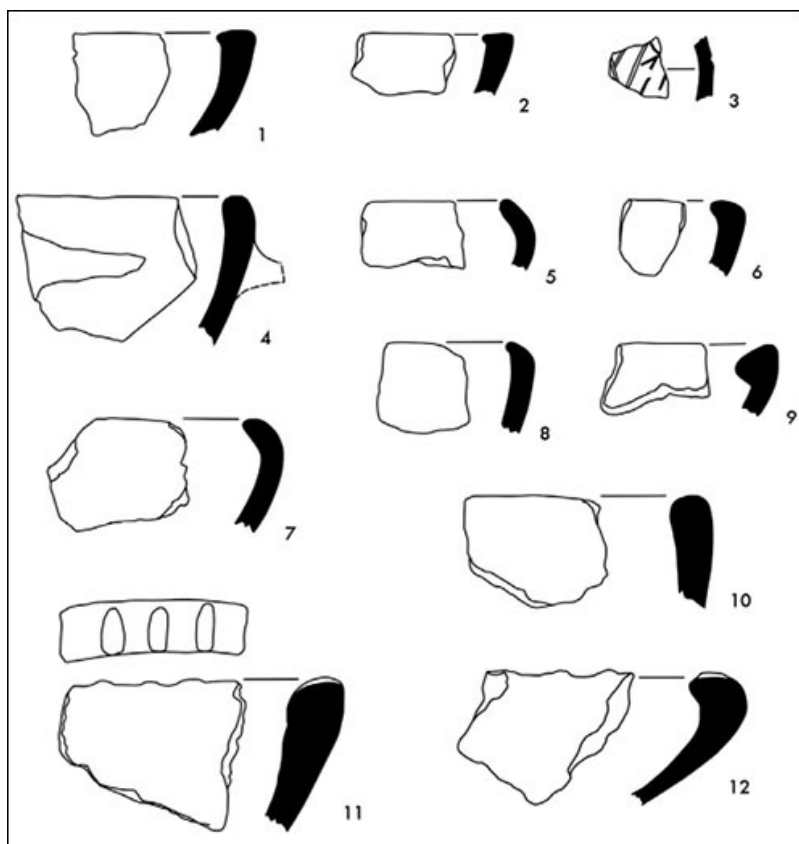


Figure 24.14. Onchestos. Scale 1:2.

In the material from Hyettos city several coarse sherds of the same category with vegetal impurities have been identified. Among them is a fragment of a rare tray-shaped vessel with a relief festooning the rim (Fig. 24.15).²⁴ The area of Hyettos is particularly important for comparative observations - despite its location in a plain surrounded by low mountains - because it is situated close to Proskynas, a recently excavated and fairly well studied site in Phthiotis which offers good comparanda for the transitional period from the FN to the EH.²⁵ In fact there is also in

Proskynas some evidence for a pottery tradition with intentional organic inclusions dated to the EH period.²⁶



Figure 24.15. Hyettos. Coarse ware with plastic decoration. Scale 1:2.

Comparisons and external parallels

Comparisons between the FN material from the Boeotian surveys and excavated sites in Boeotia are possible only with the coarse wares from the excavations in Thebes and the Sarakenos Cave. Coarse fabrics are the only pottery group within our survey finds which can be accurately dated to this specific period. The coarse pottery groups from the excavations at Thebes with the plastic and incised rope patterns should be comparable to the survey material. The incised decoration connected with the LN Ib phase at Sarakenos has been identified in only one example from Tanagra and one from Onchestos (Fig. 24.7.1; Fig. 24.14.3).

In sites where the habitation reaches the EH era – such as Onchestos, Hyettus and Haliartos – the transition from the FN seems smooth, since the new EH I shapes of bowls with inturned rims have been formed using the older fabric technology of the coarse red-slipped ware. These observations suggest that in Boeotia there is no clear division between the two periods and that perhaps the EH I period, characterized as the Eutresis phase by D. French and J. Fossey and also in the Bronze Age Gazetteer, could partly belong to the FN period.²⁷

Phases of LN habitation

Resulting from the feature analysis and the external comparisons with stratified material is the recognition of a phase of settlement during the later FN stages, in terms of the Sarakenos sequence,

and lasting through the transitional period to EBA. At the sites of Thespieae Magoula and Ayios Konstantinos we have also observed the existence of an earlier LN phase with matt-painted and black burnished pottery, attributed to the LN I and II phases after Alram-Stern.²⁸ In the absence of sufficient material, our classifications are based more on fabric technology than on typological features. What is still missing in order to create a more detailed chronology are more examples of rolled rim bowls, pattern burnished pottery and incised decoration.

At a number of so-called major prehistoric sites such as Hyettus, Onchestos, Tanagra and Askra, habitation during previous and subsequent periods is attested, while at peripheral sites, such as sites around ancient Tanagra, Hyettus and Thespieae, the settlements are usually single-phased and contain almost exclusively material of the FN phase, which confirms the picture of the rural short-lived settlement character of later and Final Neolithic societies.²⁹

External comparisons

The available material is very comparable to pottery from the first settlement period of Ayios Demetrios in Elis, the Skoteini Cave at Tharounia, the Kastria Cave in Kalavryta and Pangali in Aetolia.³⁰ It is noteworthy that these comparisons are more evident than those with other Boeotian sites. This might mean, first, that the Boeotian FN rural communities, despite their still weak presence and the low quality of pottery production, move in a network of distant contacts, and second that in Boeotia various LN and FN phases are represented, but only certain pottery fabrics – mainly the coarse – are found on intensively surveyed areas. Within this framework, the material discussed here represents the latest phase of the Neolithic culture and it continues into the EH without clear limits so far.

The scarcity and the condition of the finds does not allow a totally clear picture of the chronology and distribution of the FN

settlements compared to other prehistoric periods, but it is rather evident that there is an abundance on sites with rich residues of the EH period. The phenomenon leads us to the conclusion that this coarse ware pottery production is very close to the EBA period and perhaps it marks its beginnings. This view is supported by the detection of some common features between these two chronological periods, such as the bowls with incurved rims and the presence of a dark red coating.

Questions and perspectives

The preliminary study of this fragmentary FN material gives us a first idea about the local characteristics, the density and the chronological sequence of Boeotian FN settlements observed in a fairly large geographic area. The focus on the coarse ware groups is due to the lack of other comparative material. This does not mean that this is the only FN pottery class, but that it is the only recognizable at present within non-stratified assemblages. Many of the difficulties we faced to identify and classify the finds are associated with the fact that there are still no detailed descriptions and commonly accepted terminology for the later Neolithic and Chalcolithic coarse wares and sufficient petrographic studies in Central Greece. A special study of coarse FN fabrics could unfold the features and qualities of this pottery class which is only rarely finer or decorated; but as we have seen in the Boeotian surveys, it can, albeit with a few samples, reveal a whole millennium of Aegean prehistory.

Notes

- 1 We would like to thank for fruitful collaboration and scholarly advice: A. Snodgrass, O. Dickinson, C. Perlès, J. Coleman, Bishop Ieronymos, the Municipality of Thebes, the 9th Ephorate of Antiquities, V. Aravantinos, the Belgian Fund for Scientific Research, the Netherlands Institute at Athens, The Institute for Aegean Prehistory, and students from the Universities of Leiden,

- Durham, Bergen and Dartmouth College. All distribution maps are made by E. Farinetti.
- 2 Bintliff 1996.
 - 3 Bintliff and Snodgrass 1988.
 - 4 Bintliff *et al.* 2007.
 - 5 Bintliff *et al.* 1999, 2000.
 - 6 Bintliff *et al.* forthcoming.
 - 7 Bintliff *et al.* 2000.
 - 8 Sherratt 1981; Johnson 1996
 - 9 Bintliff 2012, chs 3–4.
 - 10 See Sampson and Mastrogianopoulou in this volume.
 - 11 Sampson 2008.
 - 12 Bintliff *et al.* 2004; Bintliff *et al.* 2005; Bintliff *et al.* 2008, 54.
 - 13 The statistics from the Tanagra Survey are not discussed here, since they currently are at a stage of reevaluation. For some preliminary results on the prehistoric finds see Farinetti, Sarri and Sbonias 2006.
 - 14 Compare this artifact with figurines from Thebes (Tsota 2009) and with a figurine from the Lion's Cave in Attica. Karali *et al.* in the present volume.
 - 15 Bintliff 1996.
 - 16 For the older Neolithic finds from the Magoula, see Caskey 1951 and Bass 1959.
 - 17 Sarri in Bintliff *et al.* forthcoming.
 - 18 Compare Fig. 10.2 with Coleman 1977, fig. 28, D and fig. 10. 5 with Ayios Demetrios Phase I, Zachos 2008, pl. 13.B 95 and B 103.
 - 19 Coleman 1977, fig. 34, B; Sampson 2008, pl. 56, fig. 60.
 - 20 Coleman 1977, fig. 32, A.
 - 21 Coleman 2012; Douzougli-Zachos 2002, fig. 8, 1–3.
 - 22 More on the prehistoric finds from Hyettos in Sarri 2012.
 - 23 Sherratt 1981.
 - 24 See a similar flat shape from the 5th period of the Franchthi Cave, Vitelli 1999, fig. 63 d.
 - 25 Zachou 2008, Psimogiannou 2009.
 - 26 Pentedeka *et al.* 2009, 927.
 - 27 French 1972; Hope Simpson-Dickinson 1979; Fossey 1988.
 - 28 Alram-Stern in this volume.
 - 29 Sherratt 1981.

30 Zachos 2008; Sampson 1997; Mavridis and Sorensen 2006.

Late Neolithic traditions: Evidence from Sarakenos Cave

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Introduction

Sarakenos Cave lies near the modern village of Akraiphnion in the South-East Kopais Basin (Boeotia), right beside the international motorway.² Its location is advantageous, on the crossroads of the established routes from the southern mainland to Thessaly and from western Greece to the Aegean. On a steep, rocky slope, it overlooks the plain of the now drained Kopais Lake, which influenced the natural environment with associated fauna and flora during the Neolithic.³ Pollen and magnetic analyses indicate the gradual reduction of forest coverage, in favor of a drier climate since 5000 BP. Moreover, the level of the lake varied, alternating between lacustrine/swampy environs on a repeated basis, regulating the available dry land and fresh water and forming a strongly dynamic landscape.⁴

Excavation and stratigraphy

Restricted geological or tectonic activity has facilitated the exceptional preservation of the deposits- a factor probably appreciated also in prehistoric times. Rapid accumulation of dung from sheep-herding in recent times, as well as the existence of a

distinctive layer of gravel from the corrosion of the cave walls at some point during the 3rd millennium BC, have protected the deeper deposits.

A domed chamber of 1500 sq m and a 10 m wide entrance that supplies ample ventilation and lighting challenge the common impression of caves as dark, secluded areas detached from the realm of the ordinary (Fig. 25.1):⁵ this site constituted an easily accessed, noticeable, communal point amidst the vital space of a densely populated area.⁶ Therefore, the extra-mural space, within which the cave is encompassed, appears to have been not at all desolate but rather a vibrant social and economic arena with ready access to rich natural resources. Furthermore, the abandonment after a dramatic climatic shift stresses the environmental and economic factors in interpreting human presence at the site.

The first trenches were opened in the early 1970s by Th. Spyropoulos. Systematic excavation has continued since 1994 as a research program undertaken by the University of the Aegean. Trenches in different parts of the cave cover 220 sq m, or roughly 15% of the cave. The adjoining trenches uncovered a uniform area extending from the entrance to the east wall of the cave (Fig. 25.2). At present, research focuses closer to the walls, where deposits appear deeper; bedrock has not been reached yet.⁷

The earliest strata in the cave are dated in the Upper Palaeolithic period, although Middle Palaeolithic features are recognizable in the lithic industries.⁸ The Mesolithic period is distinguished to Lower and Upper. The stratigraphy is supplemented by a series of calibrated carbon dates.⁹

The Neolithic strata are remarkably cohesive throughout the excavated areas. The earliest Early Neolithic dates range around 6700/6650 cal BC, suggesting a brief hiatus of about 200 years between the Mesolithic and the Neolithic. Within the Neolithic strata, the sequence appears to be uninterrupted until around 3600 BC,¹⁰ according to ¹⁴C dating.¹¹

Material culture and traditions during the Late Neolithic

The term “tradition” is introduced here to describe shared, widespread, prolonged practices in production and management of material culture, as well as the underlying shared ideology.¹² The common practice – *sensu stricto* and *sensu lato* – of decorating pottery with painted patterns is integrated into a matrix of social traditions. On one hand, it pertained to the technology of pottery production and the social mechanisms for transmission of technical skill.¹³ On the other, it was associated with food management (from production to consumption),¹⁴ an aspect especially eminent in the case of painted pottery, which consisted primarily of tableware shapes. This aspect is further corroborated in the case of Sarakenos Cave, by the results of the statistic analysis of the studied pottery assemblage.



Figure 25.1. View of the cave interior with excavated areas (clay-lined pits on a LNIA floor in the foreground).

The Late Neolithic IA (LN IA)

During the Late Neolithic I, cultural affinity is palpable in material

culture, economy and settlement patterns across Central Greece and the Peloponnese, and to a lesser extent with Thessaly. This phenomenon is interpreted as a manifestation of a changing way of life,¹⁵ in which among others the economic factor must have played an important role. The painted pottery recovered from Sarakenos Cave bears evidence of the integration of local societies; however, the cave was not associated with an immediate settlement and local population, as the surrounding area was occupied by Lake Kopais. Therefore, the material record from the site cannot be examined *vis-à-vis* settlements in the investigation of the formation of this sphere. The cave was located amidst the vital space of numerous settlements, functioning as a “communal” place.¹⁶ In this light, the cave provides an example for the activity and interaction of groups beyond the local settlement, at the inter-regional level.

The LN IA phase in particular is poorly discussed in comparison to the preceding or succeeding periods. However, it is during this phase that cave occupation starts to increase across Greece.¹⁷ Especially in Central Greece, numerous sites are added during this phase (Skoteini Cave, Varka, Corycean Cave, Halai, Ayios Nikolaos Cave,¹⁸ Eutresis, Kitsos Cave).¹⁹ Accordingly, this phase is represented by a very rich stratum in Sarakenos Cave, allowing the scrutiny of intensive practices and underlying traditions.²⁰

Thanks to the deep and uninterrupted stratigraphy, the development of traditions in pottery production and use can be examined at both the synchronic and diachronic level, making the most of the available contextual data. Although painted pottery wares are used in conventional chronology as distinct markers, indeed, certain typological and technological features seem to have actually transited from the Middle to the Late Neolithic. Several examples indicate the combination of features of the patterned Urfinis and matte-painted traditions, a trait substantiated by the stratigraphical distribution, as patterned

Urfirnis systematically persists alongside the first matte-painted examples. These “transitional” examples feature the same recipe, fine quality of finishing and firing of the Urfirnis, but also the colour palette (*i.e.* off-white or cream background and brown to black patterns), shape²¹ and pattern repertoire of the matte-painted tradition.²²

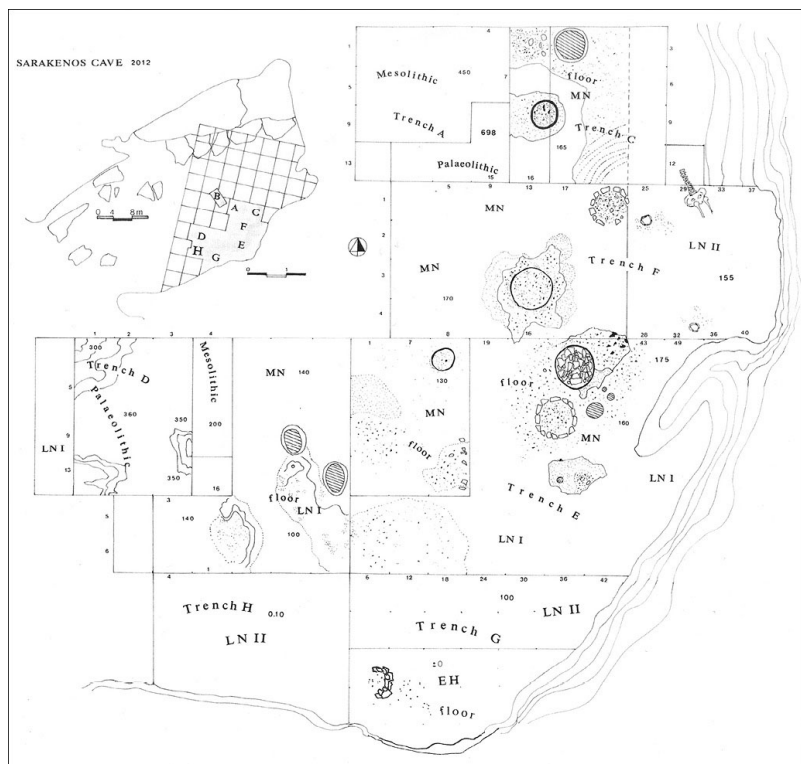


Figure 25.2. Ground plan of excavated trenches.

Another ware of transitional character is the black on red. This may be considered a reddish sub-category of the matte-painted tradition, also sharing many features with the pattern Urfirnis²³ – one of the main shapes of this category is necked jars with rounded shoulder, a common patterned Urfirnis shape (yet with completely different decoration).

At the same time, innovations are introduced among the

remaining typical matte-painted ware: two shapes, a) medium-sized, carinated bowls with elaborate handles (Figs 25.3, 25.4) and b) shallow rounded bowls (Fig. 25.5), feature a standard combination of fabric, decoration and function. Not only do they present a specific shape but they are also produced in standard dimensions. The frequent occurrence of mending perforations is no coincidence either (Fig. 25.5). Similar examples of both types are found at many sites over the aforementioned affinity region, indicating their use was more than a local Boeotian trend²⁴ (e.g. Euripidis Cave on Salamis,²⁵ Klenia Cave at Corinthia,²⁶ Kitsos Cave in Attica,²⁷ Skoteini Cave, Varka and Ayia Kalliopi on Euboea).²⁸



Figure 25.3. Matt Painted carinated bowls with elaborate handles and decoration.

From the LN IA to the LN IB

The LN IB is associated with the “Gonia-Klenia type” polychrome

ware, a typically Peloponnesian ware, distinctive due to its different fabric and shapes from the prevalent matt-painted wares. Fragments are often mentioned from sites in Central Greece in small numbers. At Sarakenos Cave however they are found quite in abundance, for the first time outside the Peloponnese. Matte-painted pottery continues whereas the earliest examples of crusted decoration appear, indicating Aegean influence.

According to the contextual information, the painted vessels were actively involved in food consumption. On a systematic basis, they are found in association with abundant animal bones, edible shells, carbonised seeds and fire structures, suggesting the extensive consumption of food in the cave. The systematic basis of this practice is documented by fixed features such as beaten floors, clay-coated basins and hearths lined with stones (around 1 m diameter). More importantly, provision for the organisation of the interior space of the cave is documented by the discovery of postholes in rows and fragments of clay with wood impressions, suggesting the existence of rows of wooden posts. Taken as a whole, these permanent features suggest that presence in the cave was frequent and systematic. Furthermore, the clay basins could have facilitated some practical function such as food processing, although the finds from their interior were inconclusive.

The element of replication and strict adherence to specific function and appearance presented in the aforementioned painted pottery wares is prominent. The customary continuation of pottery wares relates to both social and economic aspects of food management (preparation,²⁹ transportation, consumption).

The significance of these vessels pertained to the manner they were used and their content, and not as finished items, since they are not rare, exotic or unusual; on the contrary they are customary and widespread.³⁰ Moreover, their context, with abundant remains of various food products, demonstrates that they were actually involved in commensal activities, rather than treated as prestige items.³¹ A possible interpretation for the presence of

painted tableware in the cave is that it was involved in social gatherings perhaps on a systematic basis.

From the Late Neolithic I to the Late Neolithic II

In the LN IIA, a major shift takes place, as the tradition of painting patterns on tableware goes into decline. Red-polished pottery becomes the characteristic ware, frequently enhanced by pattern-burnished decoration, throughout Southern Greece.³² Shapes such as pithoids and medium-sized, semi-fine or coarse jars become more common, whereas fine tableware is replaced by wider and cruder shapes. Prominent new shapes such as rolled rim bowls, scoops, and “cheese pots”, new features such as elephant lugs, and new approaches to vessel ornament such as incised and crusted decoration appear. The occurrence of these diagnostic features is characteristic of the integration of pan-Aegean features into the mainland cultures.

A new mode of material expression and practice is recognised at Sarakenos Cave, this time documented by the clay figurine assemblage. An intriguing correlation is probable between the abandonment of painted pottery and the appearance of figurines, possibly indicative of a shift in the materialisation, and/or in the actual content of ritual practice. The typology of the figurines is characterised by repetition and standardisation, as they follow a relatively standardised repertoire. The existence of an underlying, common tradition is further suggested by the manner of use and deposition, *i.e.* frequently fragmented, in massive quantities, in a specific but highly accessible area of the cave, immediately after the entrance. This conspicuous manifestation of ritual practice could be further associated with activities taking place in the wider rural space and not merely the cave itself.

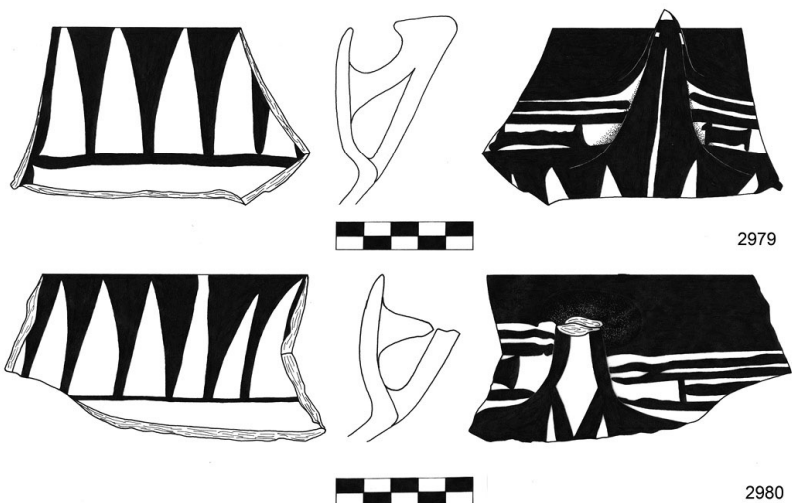


Figure 25.4. Matt Painted carinated bowls with elaborate handles and decoration.

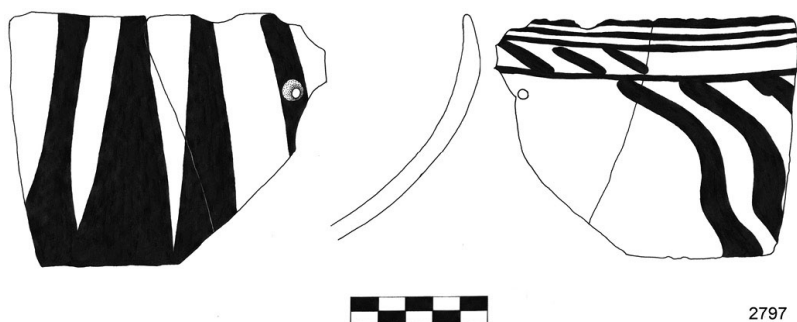


Figure 25.5. Matt Painted rounded (hemispherical) bowl.

Roughly 2000 fragments of clay figurines portray simply modelled, and thus quite abstract, human figures, manufactured using a simple technique. However, increased naturalism is sometimes observed. Some must have functioned as proper statuettes, standing about 0.40 m or taller, judging by large-sized examples or comparable fragments representing feet, legs or heads (Figs 25.6, 25.7).



Figure 25.6. Female over-sized figurine with traces of red and white pigment.



Figure 25.7. Legs from over-sized figurines.

Both female and male types are found: a female type in a childbirth position is quite common (Fig. 25.8). On the contrary, though male figurines are not common elsewhere, they do abound at Sarakenos. Even more significant is a type of male figure sitting on the ground with legs spread, emphasising the figure's genitalia (Fig. 25.9). This male pose could be the counterpart of the female in childbirth. The types indicate the existence of a local, Boeotian tradition.³³ These objects appeared during a phase (*ca.* 4000 BC) when figurine manufacture had dwindled in the rest of the mainland. On the other hand, a considerable number of triangular heads found accords with a figurine type common throughout the South and North Balkans, the Aegean and Cyprus.³⁴



Figure 25.8. Female figurine in childbirth position.



Figure 25.9. Seated male figurine with spread legs.

The largest concentrations of figurines were deposited in the area closer to the entrance and the east wall of the cave. Numerous figurines were also discovered on beaten floors together

with long, intact, complete deer antlers suggestive of some kind of ritualised depositional behaviour (Fig. 25.10). Again, the contextual evidence indicates the systematic consumption of meat and other types of foodstuff. The ritual dimension is implied by the extensive use of red pigment on the figurines, but also remaining in the interior of vessels and on stone implements, a trend which spread widely in the following Early Bronze Age period.³⁵

The transition from the Neolithic to the Early Bronze Age

The term “Final Neolithic” was coined 40 years ago by C. Renfrew.³⁶ At the time, limited evidence existed for the Neolithic, especially for the southern part of Greece and the Aegean, while ¹⁴C dates were very few.³⁷ In the following years, the implication of this term was confused, authors ascribing to it a time span from the middle of the 5th millennium BC to the end of the 4th.³⁸ It becomes evident however that such a long period cannot be considered as “Final”. This is evident on chronological grounds, as this period covers the longest part of the Late Neolithic, but also on qualitative, as major shifts take place in settlement patterns, burial practices, exchange networks, metallurgy. Therefore, the designation of sub-phases is necessary.³⁹



Figure 25.10. Clay figurines and deer antler deposited on a LNIIA floor.

In spite of theories presenting the Greek territory as empty space during the 4th millennium BC, continuous occupation is documented stratigraphically at Sarakenos Cave, Tharrounia Cave, Kephala on Keos, Cyclops Cave on Youra,⁴⁰ Ikaria as well as on small islands of the Dodecanese (Yali, Alimnia, Leros). The available ^{14}C dates for the majority of the sites range around the mid-4th millennium BC. However, the diagnostic Late Neolithic II pottery features (pattern burnished, rolled rims, scoops) of the very late 5th millennium to mid-4th millennium or even later, is not present in all areas of the Aegean. For example, pottery from Ikaria, Yali, Alimnia and Strofilas⁴¹ is different. These sites seem to represent the latest phase, towards the end of the 4th millennium BC. As these sites present lesser affinity with the preceding Neolithic phase, they could in fact be considered of actual “transitional character” between the Neolithic and the Early Bronze Age.

Unfortunately, very few ^{14}C dates are available for this critical

phase. At Perachora some ^{14}C dates were assigned to the EH I,⁴² however not very convincingly. Similarly obscure is the available dating from Eutresis.⁴³ On Euboea, where small coastal and inland sites with architectural remains and abundant obsidian were excavated, charcoal recovery was yet impossible. Pottery was typical neither of the EH II nor the Neolithic. However, a distinctive shape of this phase (an open vessel with strap handles stemming from the mouth)⁴⁴ follows the Neolithic tradition. Comparable pottery was found at the Tharrounia settlement and in the earliest stratum of Manika. At Kaloyervrisi and other EBA I sites between Eretria and Chalkis, excavated in the 1980s, the layer with the same pottery was found below the EH II. In consequence, this phase could be mutually considered as EH I or Late(st) Neolithic.

It has been recently proposed that the Greek mainland was almost deserted in the 4th millennium.⁴⁵ In this frame, all excavated sites which have produced ^{14}C dates were examined. Still, dates from clearly defined stratigraphies documenting habitation in the 4th millennium BC⁴⁶ were systematically rejected.⁴⁷ With regard to the Cyclades, stratigraphy at Zas Cave on Naxos is also rejected as disturbed, while no continuation is recognised at Koukounaries on Paros, questioning the chronology of diagnostic types such as rolled rims and cheese pots. Moreover, the site of Ftelia, Mykonos (early 5th millennium) is mistakenly considered as synchronous with Kephala, dated almost 1000 years later. Reversely, the site of Strofilas, Andros⁴⁸ is dated to the 5th millennium BC; despite the absence of absolute dates, the pottery is clearly later than Kephala.

With reference to Skoteini Cave at Tharrounia, human presence (with the 3666–3517 BC date with 92.7% probability) was questioned, despite the existence of characteristic vessels such as Kephala-type scoops and more importantly, the accordance of the unique ^{14}C date from the site of Kephala with the one from Tharrounia. Nevertheless, the transitional phase, which could be

named “Latest” Neolithic or EBA I, has been found at the nearby settlement. This phase is characterised by a particular pottery that follows the Neolithic tradition in terms of technique and fabric. The cemetery of the settlement is again dated to the second half of the 4th millennium. At the Cyclops Cave on Youra, the value of the (DEM-521) 3652–3527 BC date (95.4% probability), again falls within the late LN II.

At Sarakenos Cave, the final stage of the Neolithic is represented by a very rich and thick deposit. The latest date from trench A (sample DEM-672) is 3757–3640 BC, obtained from a clear stratum with pottery types including rolled rims and Kephala-type scoops. The interim open vessels with ribbon handles mentioned above for Euboea were again found, though they alone cannot sufficiently bridge the gap. In any case, the so far unique date, together with the longevity of the LN II stratum at Sarakenos, point out that Central Greece was never deserted. A hiatus is observed later in the sequence, between the end of the LN II stratum and the mature Early Bronze Age II.

We could term Final Neolithic the period between 3800–3300 BC (LN IIB). When the stratigraphy is clear and occupation continuous, as at Sarakenos Cave, this late phase can be easily distinguished. Another applicable term is “Terminal” Neolithic. Consequently, the ambiguity surrounding the transition from the Neolithic to the EBA may partially be the outcome of the scarcity of carbon dates. Another reason is the co-examination of sites excavated in very different times and by diverse methods. Nevertheless, actual differences in duration and cultural features existed between regions. Still, in all cases, the fusion of old Neolithic traditions with new EBA elements is evident. At the same time, it is becoming apparent that the radical developments witnessed on the Cyclades and Crete in the beginning of the EBA, probably influenced the mainland a few hundred years later, as the EBA I is scarcely documented in Sarakenos but also in most continental sites. All things considered, the continuation of the

Neolithic period into a well-advanced phase of the 4th millennium cannot be questioned, suggesting a short break between the end of LN IIB, *ca.* 3500 BC, and the beginning of the Early Bronze Age I, *ca.* 3300 BC or even later. It should be stressed though that theories of depopulation and abandonment provide no substantial explanation for the causes of these phenomena.

Conclusions

A major part of the information about the Late Neolithic material culture and chronology derives from cave excavations, especially for the southern mainland. In this frame, the Sarakenos Cave represents a case of the manifold aspects of cave use, an increasing trend across the South Aegean in the Late Neolithic. The LN sequence in Sarakenos spans three millennia with no evident hiatus, from 5300 to at least 3600 BC. During this period, major shifts are discernible, combining evidence from different categories of finds. Enduring traditions coexist with innovations in economy and material culture. The sociocultural traditions across Central Greece demonstrate the variable interaction between regions in the course of time, primarily with the North-East Peloponnese and areas around the Corinthian Gulf. The affinity of this network may be attributed to different factors, other than geography: climatic conditions, similar subsistence economy, a shared area of economic activity or shared natural resources, or reversely, the exchange of goods, products⁴⁹ or ideas between local groups, established routes of mobility.

The cave diachronically constituted a communal point frequently visited, with food and artefacts deposited. These practices took place not exclusively, but alongside other activities, judging by the range of utilitarian objects – such as spindle whorls, mortars, bone and stone tools – and the faunal and plant remains, suggesting that ritual was not alienated from daily life, adopting different forms and meaning through time.

This suggestion however, should not mistakenly designate a

domestic use to the cave, given that numerous settlements of various sizes existed in the vicinity. Instead, it positions the cave as an in-between area, where activity entered the domain of the extra- or non-domestic (*i.e.* wild), facilitating groups of people during hunting, collection of wild products, traveling, transhumance, social gatherings, refuge, to name only a few. Although contexts with striking ritual manner are documented, they do not constitute the single or prevalent activity on site. On the contrary, multiple purposes were apparently served either simultaneously or at intervals, suggesting that the cave was associated with more than one particular use.

In consequence, interpretation of traditions and their material remains is not aided by the designation of a single, specific use to the locus of the cave but rather, on the evident activities and manner of deposition, envisaged within the extra-mural frame. This way, it becomes possible to examine the interaction of local groups, the function of social networks and the creation of local identities and traditions of Central Greece from the scope of a focal, “perennial” site.

Notes

1 Acknowledgements: Institute of Aegean Prehistory; Ministry of Culture; Ephorate of Palaeoanthropology–Speleology; Institute of State Scholarships (IKY); Polish Academy of Science.

2 Sampson 2008b, 24.

3 Okuda *et al.* 2001, 78–81.

4 Farinetti 2008, 121–2.

5 Tomkins 2009, 146.

6 Some of the best-known Neolithic sites of the mainland lie in the vicinity of the Kopais Basin, *i.e.* Chaironeia, Orchomenos and Elateia.

7 The first volume is followed by a second which includes the finds of trench A with an uninterrupted stratigraphy of 7.5 m. Cultural evidence starts from the Middle Palaeolithic. It will be published by the University of the Aegean and the Polish Academy of Science. A

- third volume is also in preparation, on the faunal assemblage, by K. Trantalidou.
- 8 Sampson *et al.* 2009.
- 9 Sampson 2008b, 48–9; Sampson *et al.* 2009, 5–6.
- 10 This date does not necessarily represent the end of the phase, the sample not deriving from the lower part of the stratum.
- 11 Sampson *et al.* 2009.
- 12 Skibo and Schiffer 2005, 65.
- 13 Roux 2011.
- 14 Halstead 2007, 26–7; Tomkins 2007a, 176.
- 15 Phelps 2004, 96.
- 16 In the following, the cave is deemed a communal area on the grounds that it was not associated with an immediate settlement, its natural position within the Kopais Basin and its great capacity, which could have facilitated social gathering of large groups.
- 17 Sampson *et al.* 1999.
- 18 Benton 1947.
- 19 Lambert (ed.) 1981.
- 20 See also Mee 2007a, 211; also Mee 2007b.
- 21 The main shapes are medium-sized bowls with flat base and straight walls.
- 22 Phelps 2004, 95–6; Vitelli 1999, 35.
- 23 Douzougli 1998, 89; Phelps 2004, 69.
- 24 During the conference, Eva Alram-Stern stressed the resemblance with examples from Thessaly as well (see Alram-Stern in this volume).
- 25 Mari 2007, 95.
- 26 Chatziagellou pers. comm.
- 27 Lambert (ed.) 1981, fig. 185 (left).
- 28 Sampson 1993a, fig. 32 (middle row, first to the left) and fig. 49 (middle row, first to the left); Sampson 1981, 105.
- 29 Valamoti 2007, 102.
- 30 Perlés and Vitelli 1999, 102–4 for a different view.
- 31 Mee 2007a, 213–5.
- 32 Alram-Stern 2007b, 1–5.
- 33 Close parallels were recently discovered at a site in the plain of Thebes, E. Tsota pers. comm.
- 34 Orfanidis 2008, fig. 1, 1.

- 35 e.g. Carter 2008b, 120–1.
- 36 Renfrew 1972.
- 37 Vagnetti 1996, 36; Nowicki 2002, 15–6.
- 38 Phelps 2004; Vitelli 1999.
- 39 Sampson 1984.
- 40 Sampson 2008a; Sampson 2011.
- 41 Televantou 2008.
- 42 Fossey 1987.
- 43 Caskey and Caskey 1960, 164.
- 44 Samspon 1993b, fig. 44.
- 45 Coleman 2011.
- 46 Coleman 2011, 13.
- 47 The importance of the Doliana Group, characterised by northern elements, is also overemphasised, as it constitutes a rather local phenomenon.
- 48 Televantou 2008.
- 49 Cavanagh 2007, 118.

Lion's Cave, Hymettus Mountain, Attica: Figurines, structures and material culture associations

Lilian Karali, Fanis Mavridis¹ and Dimitris Lambropoulos

Introduction

The Lion's Cave (Leontari) is located on the eastern slopes of Korakovouni, the name of the northern summit of Mount Hymettos, 550 m above sea level. The cave consists of a chamber divided into two main parts. The length of the cave is *ca.* 50 m, its width 20 m, while its highest point is about 10 m (Fig. 26.1).

The surrounding area is rocky and is covered with maquis and pines. The southeast orientation of the rather low but wide entrance offers a great view over the fertile Mesogaia Plain and the east coast of the Attica Peninsula. In good weather conditions, South Euboea is also visible.²

The excavation

Systematic excavations in the Lion's Cave were undertaken from 2003 to 2007 under the auspices of the Ephorate of Palaeoanthropology and Speleology and the University of Athens, Department of History–Archaeology.

Eleven trenches (named after the letters of the Greek alphabet A–I, plus an entrance trench) were opened to investigate the

nature of the cave's occupation (Fig. 26.2). Only two trenches, A and ΣT, reached bedrock and offered the best stratigraphic evidence. It was not possible to safely continue the excavation in the other trenches due to the thick stalagmite encrustation and the large rocks present fallen from the cave's ceiling. The deposits excavated in these trenches were, in any case, disturbed. According to the finds, especially pottery, together with the few available radiocarbon dates, the main period of the cave's occupation covers different phases of the Late Neolithic. Material remains belonging to historical times were also present, indicating the use of the cave as a shrine during Classical times (Table 26.1).

Quantified material coming from each layer give an idea regarding the number of sherds present.³ Excavated pottery in combination with the surface collection does not exceed a total of 10,300 sherds, including all periods of use. More specifically, the stratigraphic trench A measuring 2 × 2 m and reaching a depth of 2.3 m, yielded about 2449 sherds (426 very small and non-diagnostic sherds are not included), 1772 of which were stratified.



Figure 26.1. The entrance to the cave.

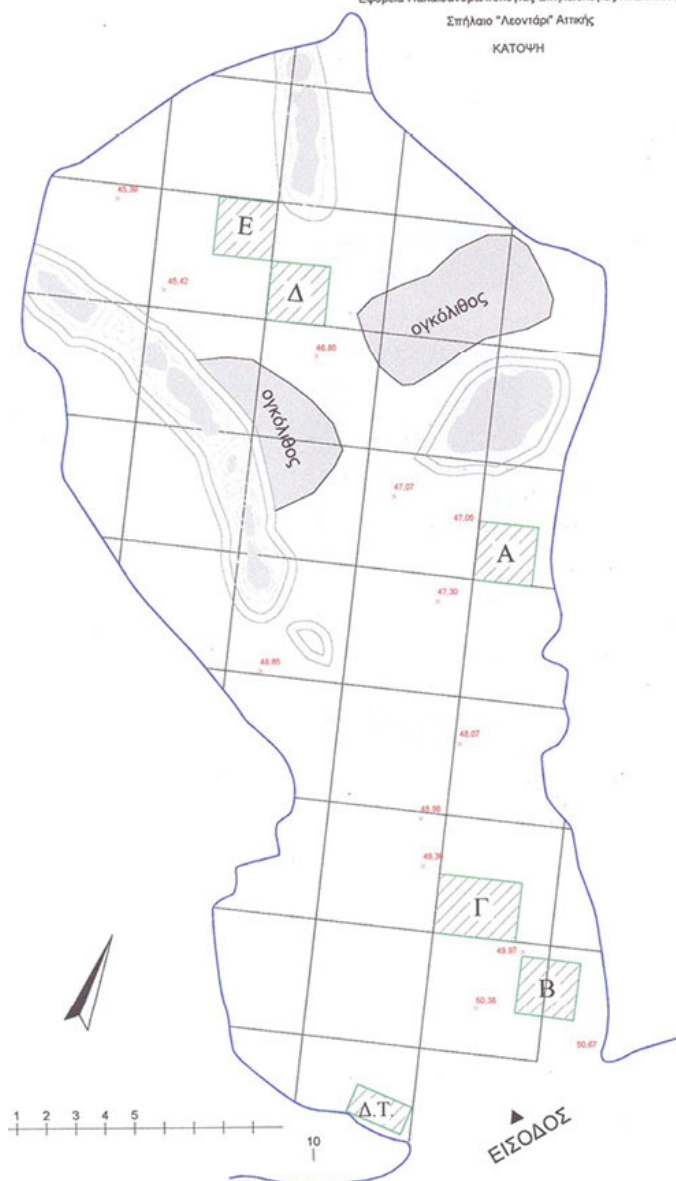


Figure 26.2. Plan of the cave with the most important trenches opened.

One of the most important groups of finds coming from the cave's Neolithic deposits is the stone and clay anthropomorphic

figurines. Their finding is of exceptional importance especially for a cave site,⁴ since they were found in contexts associated with structures and other material remains. The aim of this paper is to present and offer a possible interpretation of the significance of these rarely preserved contexts. They are important not only for better understanding the use and meaning of material remains but also, in a broader perspective, for addressing aspects of the symbolic and ideological expression of their users.

Before turning to the anthropomorphic figurines themselves, the stratigraphic sequence, spatial distribution and associations of finds, as well as the chronology of the contexts in which the figurines were found will be presented.

Table 26.1. Pottery in relation to the stratigraphic sequence.

<i>Layer</i>	<i>%</i>	<i>Number of sherds</i>	<i>Comments</i>
1	12.7%	226	Disturbed, almost 50% of the sherds are post-Neolithic.
2	6.1%	108	Disturbed, 1/4 of the pottery is post-Neolithic.
3–4	11.3%	200	1st stone layer. Date: LNII.
5–6	23.7%	420	Silty layers with high concentration of artefacts. Date: LNII
7	8.9%	157	2nd stone layer. Date: LNIB/transition to LNII
8–9	19.5%	346	Silty layers with high concentration of artefacts. Date: LNIB/transition to LNII
10/11– 12–13–14	10.8%	192	LNI, matt painted ware predominates
15	6.9%	123	Early LNIA, matt painted, black burnished, Urfinis sherds.
Total	100%	1772	

Table 26.2. A comparison of the pottery present in Trench A (Lion's Cave) and in Trench C (Tharrounia Cave).

<i>Trench C – Tharrounia Cave</i>	<i>Prehistoric sherds</i>	<i>Trench A – Lion’s Cave</i>	<i>Prehistoric sherds</i>
Tharrounia I & II, LNII	4200	LNII (Layers 1, 2, 3, 4, 5, 6)	814 (pottery of historical times of Layers 1, 2 are not included)
Tharrounia III, LNIB	16,000	LNIB/transition to LNII (Layers 7, 8, 9)	501
Tharrounia IV, LNIA	3600	LNIA, LNI (Layers 10/11–15)	312
Total	23,800		1,627

The stratigraphy

The presentation of the stratigraphic sequence of the Lion’s Cave will concentrate on trench A. This trench produced the best sequence and most of the figurines. It reached the depth of about 2.3 m in the course of which fifteen layers (from top to bottom) were recognized ([Fig. 26.3](#)).

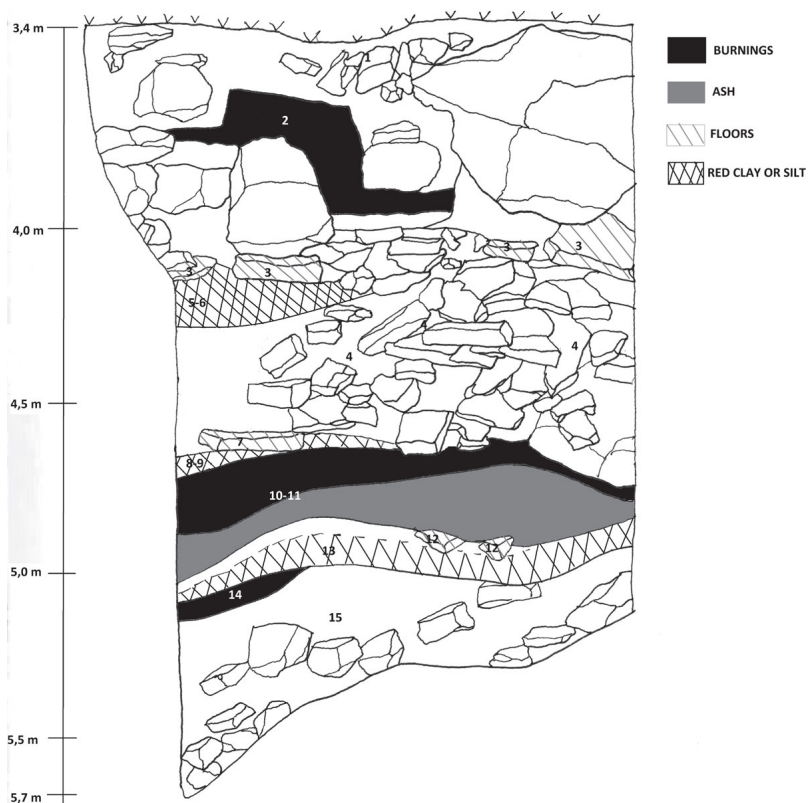


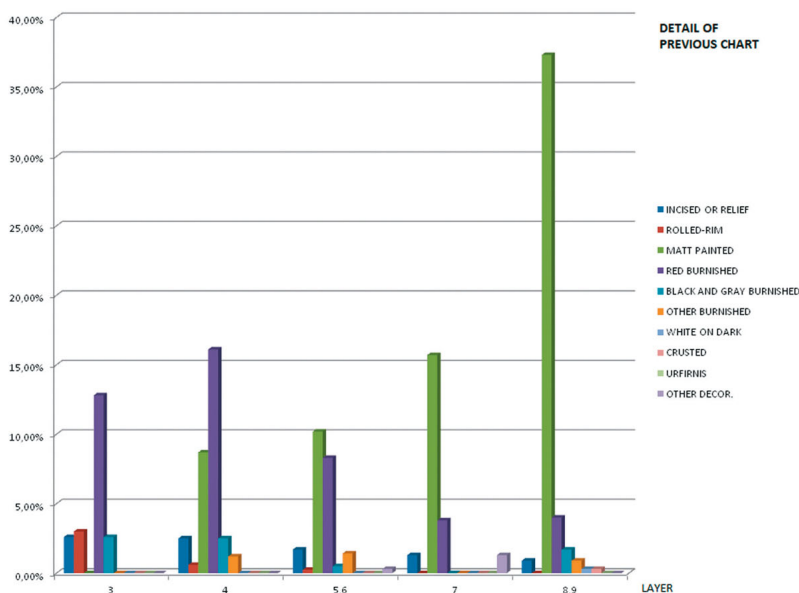
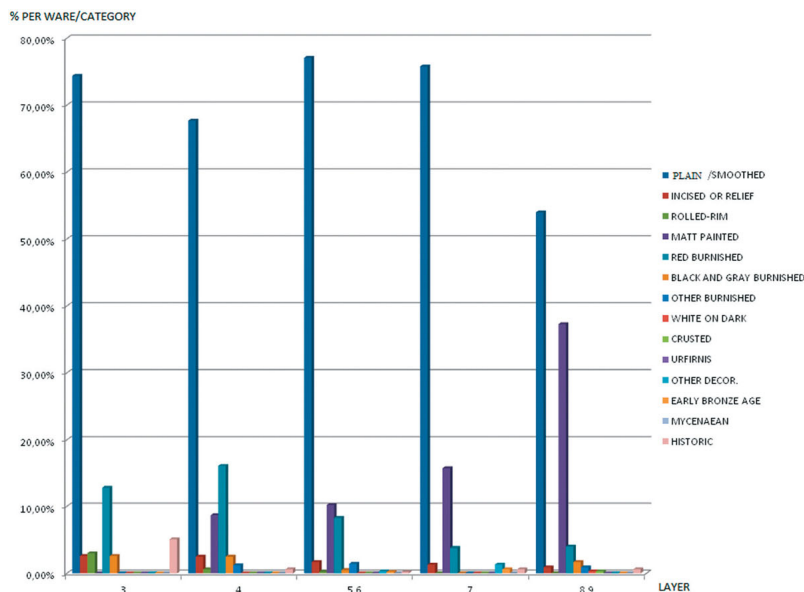
Figure 26.3. Trench A. South profile.

Layer 1 was heavily disturbed by recent activities. It consisted of loose brown soil, manure and numerous small and medium-sized angular pieces of limestone. It yielded a few pottery finds dating to Classical and post-Roman times together with some prehistoric material.

Layer 2 consisted of repeated hearths, separated by burnt soil. The layer was heavily eroded and was only partly preserved, due to the intrusions of stones from the upper layer. The finds were few, consisting mainly of pottery belonging to various periods.

In layer 3, the material is chiefly Neolithic with very few sherds belonging to later phases. It consisted principally of flattish larger stones, and likely formed a habitation layer. On the surface of this layer very few finds were detected, but among them were a

characteristic quern stone and a pebble in close proximity. Among the stones of this layer only 33 sherds were found, dating to the Late Neolithic II phase.



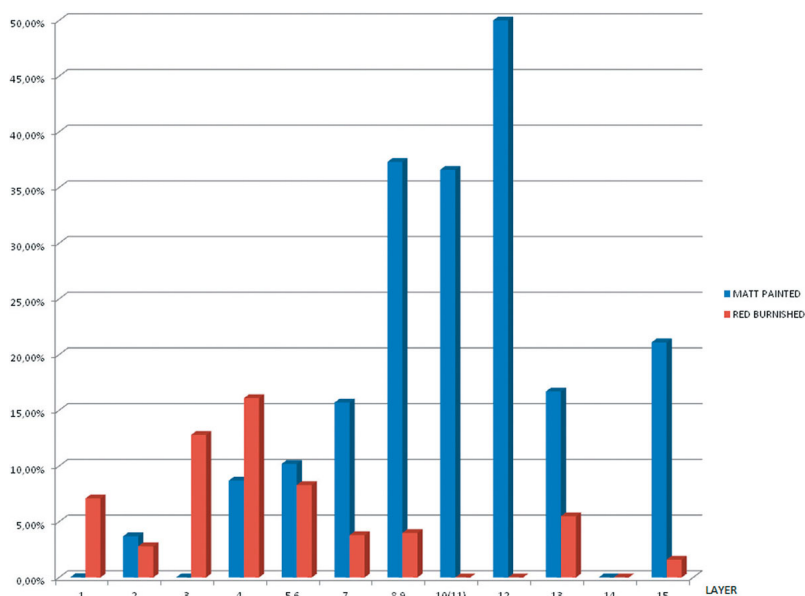


Figure 26.4. Pottery statistics.

Layer 4 contained many angular stones (rubble/fill) that constituted the sub-stratum of the previous layer. The overall construction seems to represent an intentional effort by the cave's users to arrange the inner space of the cave. Pottery finds increase in number and they are of the same date as those from the previous layer.

The next two layers, 5 and 6, were sealed from the upper layer without any noticeable contamination. Layers 5 and 6 were very thin, similar in composition but different in colour (silty/sandy deposits with some small-sized stones). These layers produced a high concentration of artefacts. The first finds of this layer were observed exactly below the last stones of the previous layer. They were found in specific associations implying an intentional placement/depositional practice (see below). Among other artefacts, eight clay figurines were uncovered, seven coming from layer 5 and one from layer 6.5

The underlying three layers (7, 8, 9) repeat the same pattern of the aforementioned layers 4, 5 6. Layer 7 was similar to layer 4. It

consisted of small and medium sized angular stones. Coarse pottery of the Late Neolithic IB–II was uncovered among the stones.

Below layer 7, two thin silty/sandy layers (8, 9) appeared. The quantity of finds increased again, as in the case of layers 5 and 6. The picture obtained was similar to that described above. In this case only one figurine was detected coming from layer 8 (BO4). Below layer 9, there was ash and carbon (10/11). Below, a new layer (layer 12) of stones and reddish soil was unearthed.

The finds from the layers below are scanty. Layer 13 consisted of reddish soil, while the underlying layer (14) is full of ash. Finally, the reddish soil in layer 15 was found together with stones.

In order to better understand the role and meaning of the anthropomorphic figurines we will concentrate our analysis on the layers in which the figurines were found.

Pottery, absolute and relative chronology (layers 3–9)

Based on the pottery finds from individual layers together with the few available radiocarbon dates we can establish a rather safe chronological frame for the figurines and the contexts in which they were found ([Fig. 26.4](#)).

The prehistoric pottery from the topmost, albeit disturbed, layers (1 and 2), gives the first glimpse. The presence of many red slipped and burnished sherds, few matt-painted ones, handles of scoops, an elephant lug and sherds with incised or grooved decoration sets a chronological horizon datable to the Late Neolithic II.

In the lower undisturbed layers the presence of specific wares and shapes offers a clearer chronological picture. The first stone layered deposit (3 and 4) and the two underlying layers (5 and 6) represent a typical pottery assemblage of the Late Neolithic II with many similarities to the so-called Attica-Kephala culture.

The majority of the pottery consists of semi-coarse and coarse sherds, with smoothed or rough surfaces, although there are a few with well-burnished surfaces. The fabric is characterized by the presence of copious non-plastic inclusions.

Sherds of pithoid vessels are usually decorated with rope-motifs or raised plastic bands with two parallel rows of impressions. They are known from many Late Neolithic II sites, though this type of decoration is also present in earlier assemblages.⁶ Kephala,⁷ Ayia Triada Cave at Karystos,⁸ Sarakenos Cave⁹, Tharrounia Cave¹⁰ and the Athenian Agora¹¹ are some of the sites where this decoration has been identified.

Red burnished and slipped ware is also thought to be typical of the Late Neolithic II. It is known from Ayia Triada Cave in South Euboea,¹² Kephala on Kea,¹³ Ayios Demetrios in the Peloponnese,¹⁴ Tharrounia Cave on Euboea¹⁵ and the Athenian Agora,¹⁶ among other sites.

The appearance of rolled-rim bowls suggests a later stage in comparison to the Attica-Kephala horizon. This type of bowl is known from many sites: e.g. Kitsos Cave in Attica,¹⁷ Ayios Demetrios in Triphyllia,¹⁸ Sarakenos Cave in Boeotia,¹⁹ Tharrounia Cave on Euboea²⁰ and Zas Cave on Naxos.²¹

Moreover, cylindrical and strap handles of scoop-like vessels with incised or grooved decoration are present. This decoration appears on body sherds, mainly below the rim, forming a successive zigzag band. Incised or grooved decoration is the hallmark of the Attica-Kephala culture. It is widespread at many sites, such as Kephala on Kea,²² Tharrounia Cave,²³ the Athenian Agora,²⁴ Kitsos Cave²⁵ and many more.

Strap handles are the most common, in addition to cylindrical struts from scoops. Strap handles belong both to large vessels (pithoid) and smaller ones (commonly with red slipped and burnished surfaces). One strap handle bears a cylindrical projection resembling a button on its top. Good parallels for these handles are known from the Schisto Cave in Attica,²⁶ Kephala,²⁷

the Athenian Agora²⁸ and Tharrounia Cave.²⁹

Lugs are not numerous although they are varied. Lugs with vertical or horizontal perforation below the rim come from red burnished and slipped bowls. Similar red burnished vessels with lugs are known from Kephala on Kea³⁰ and the Tharrounia Cave on Euboea.³¹ Moreover, unpierced/solid or tongue shaped lugs, rounded in shape and either horizontal or upward leaning are common among pithoid and coarse wares in general. A horseshoe lug, as well as a mastoid and a double flat-topped lug are also represented. Such lugs have been found mainly in Late Neolithic IB contexts,³² although in some cases they seem to be present in later assemblages, too.³³

Therefore, pottery from layers 3-6 finds close parallels to many sites in Southern Greece dating to the Late Neolithic II. Stratigraphically speaking, it was not possible to distinguish with certainty the presence of earlier or later stages.

The second stone floor (7) and the underlying layers (8 and 9) present a somewhat different picture. In them coarse and semi-coarse pottery dominates. In contrast to overlying layers, rolled rim bowls and pithoid sherds with plastic decoration are not present while sherds with incised or grooved decoration are fewer. They mainly belong to scoops of the Late Neolithic I³⁴ also known from several other sites, such as Sarakenos Cave in Boeotia³⁵ and Tharrounia Cave on Euboea.³⁶

Matt-painted ware outnumbers red-burnished and slipped wares in these layers. Rounded and carinated bowls, fruit stands and closed necked vessels are representative shapes of the matt-painted ware. The bichrome variety, considered as a rather late feature of the Late Neolithic I,³⁷ is also present.

Other pottery wares are represented by only a handful of sherds. Only one body-sherd of a white on dark ware was recorded. It was decorated with a white wavy line on the black burnished surface. There is also the lower part of a handle or lug of a vase decorated with red crust. Red crusted ware is considered

a characteristic feature of Late Neolithic IB and II.³⁸

Many different ceramic wares coexist in these layers. Despite “kick-ups” from earlier deposits, elements of the Late Neolithic IB are more common in comparison to layers 3–6 which are dated to the Late Neolithic II.

The available radiocarbon dates (Table 26.3) confirm these observations. They indicate a date ranging from about an advanced stage of the Late Neolithic I to the beginning (late 5th, first half of the 4th millennium BC) of the Late Neolithic II.³⁹ Some sherds belonging to rolled rim bowls may indicate the presence of an even later stage of the Late Neolithic II; however, this phase was not distinguished stratigraphically.

Table 26.3. Radiocarbon dates from the Lion’s Cave (Y. Maniatis).

Lab. n.	Sample	Material	¹⁴ C (BP)	δ ¹³ C ‰	BC	95.4%
DEM-2100	Tr.A, L.5 #10 (J16)	Charcoal	5255±35	–23.95	4229–3976 4225–3976	(95.4%)
DEM-2101	Tr.A, L.6 #11 (J24)	Charcoal	5197±60	–24.31	4230–3811 4240–4002	(95.4%)
DEM-2102	Tr.A, L.7 #12 (J26)	Charcoal	5597±30	–24.04	4490–4357 4435–4352	(95.4%)
DEM-2103	Tr.A, L.7 #12 (J27)	Charcoal	5552±30	–23.85	4451–4346 4456–4357	(95.4%)

The underlying layers (11–4) indicate a more sporadic use of the site. Matt-painted pottery is the most representative ware. Typical matt-painted shapes are closed necked vessels, open bowls and fruit stands.

Finally, in layer 15 a few Urfirnis sherds, as well as a few black burnished ones certify that the cave was also in use during the earlier stages of Late Neolithic I.

Anthropomorphic figurines

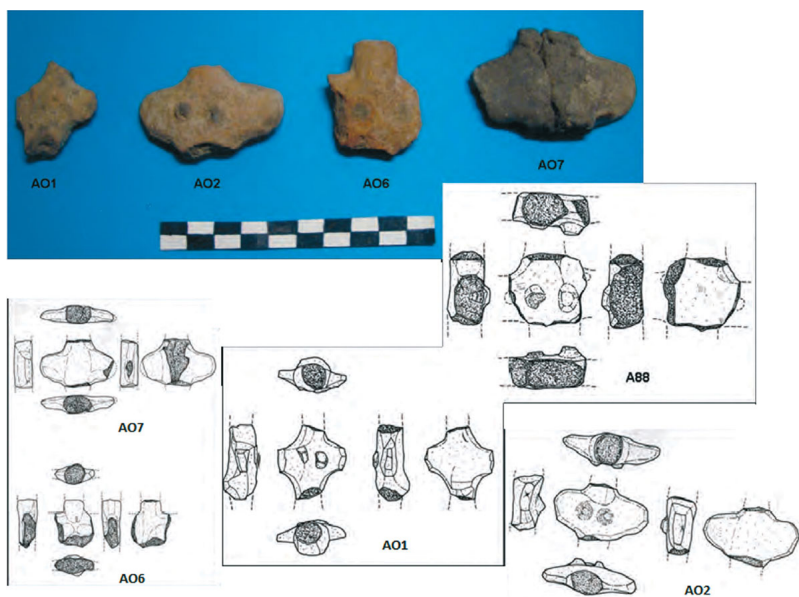
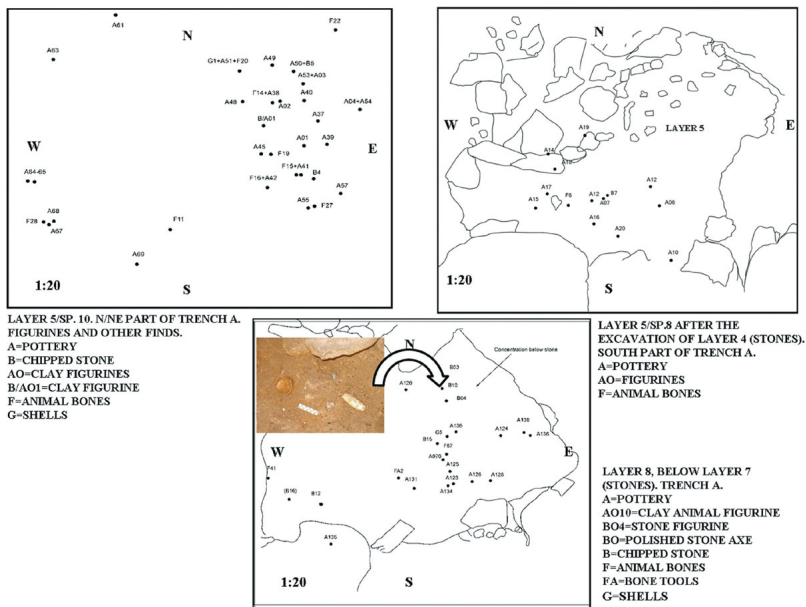
The cave yielded a total of twelve figurines (Table 26.4). Ten come from trench A: eight from layers 5–6, one from layer 8, while one comes from the profile of the trench. The two remaining figurines were discovered in trenches ΣT and E (Fig. 26.5). The typology of the figurines is very interesting, as it represents a variety of traditions and typological affinities. Four main groups

can generally be identified:

To the first group belong five female⁴⁰ figurines (AO1, AO2, AO6, AO7, A88) that preserve the torso, breasts and neck or arms (Fig. 26.6). They find close parallels in the clay figurines recovered at the Kephala cemetery on the island of Kea.⁴¹

Table 26.4. Catalogue of figurines.

<i>Trench cat. n.</i>	<i>Layer</i>	<i>Depth</i>	<i>Material/construction</i>	<i>Dimensions (cm)</i>
A (cat. n. AO8)	Profile	4.02	Semi-coarse clay with inclusions of various sizes, micaceous. Traces of organic material. Rough surfaces without burnishing. Fingerprints are preserved in places. Upper part brown (5/6 strong brown 7.5YR), lower part reddish (4/8 red 10R).	H. 7.7, W. 4.9, H. of leg 4.8, W. of leg 2.2, W. of torso 2.5
A (cat. n. AO7)	L5/SP.8	4.30–4.40	Clay, many small sized inclusions and sporadic large ones. Traces of surface treatment and smoothing/grayish (3/1 dark gray 10YR), light brown (5/4 brown 7.5 YR), gray core.	H. 4.4, W. (with arms) 6.7, Dms. of torso lower part (in section) 2.4 × 1.6, Dms. of neck base (in section) 2.4 × 1.4.
A (cat. n. AO6)	L5/SP.8	4.30–4.40	Clay with many inclusions, micaceous. Visible traces of surface smoothing/ brown surface (5/3 brown 7.5 YR), gray core, red clay (4/6 red 2.5 YR)	H. 4.5, W. 3.4, D. of neck (in section) 1.8
A (cat. n. AO3)	L5/SP.10	4.39	Clay with many inclusions, porous, micaceous. Rough surfaces / red clay (4/8 red 2.5YR).	H. 6.0, W. 3.8, T. 0.9
A (cat. n. AO4)	L5/SP.10	4.41	Semi-coarse clay with many stone inclusions, micaceous, gray core. Rough/ brown surface (6/4 light brown 7.5 YR)	H. 2.9, H. of head 2.2, W. of head 1.9, W. of neck 1.4, Dms. of neck base (in section) 0.6 × 1.7
A (cat. n. A/B01)	L5/SP.10	4.41	Clay with inclusions, micaceous. Rough surface with trace of residue. Very well fired clay. Visible traces of surface smoothing/ reddish clay (5/6 yellowish red 5YR), gray core.	H. 7.3, W. of torso 1.9, H. of head 1.8, W. of head from 0.5 to 2.3, H. of neck 1.0, W. of neck 1.7, L. of lug 2.0, W. of lug 2.1
A (cat. n. AO2)	L5/SP.10	4.41	Clay with inclusions/ red (4/8 red 2.5 YR).	H. 3.3, W. 5.7, D. of neck base (in section) 2.0.
A (cat. n. AO1)	L5/SP.10	4.45	Clay, semi-coarse with many inclusions, micaceous. Traces of organic material; surface treatment. Traces of burning in places/ brown surface (4/3 brown 7.5 YR), red (4/8 red 10R) in places (section), gray core.	H. 4.2, W. (with arms) 3.6, Dms. of neck base (in section) 1.2 × 1, Dms. of torso lower part (in section) 1.5 × 1.2
A (cat. n. A88)	L6/SP.11	-	Clay, coarse with many inclusions of various sizes, micaceous/ clay and core reddish (5/3 reddish brown 5Y), red surfaces (4/6 red 2.5YR).	H. 3.4, W. 4.0, Dms of neck base (in section) 2 × 1.5, Dms. of torso lower part (in section) 2.8 × 1.8
A (cat. n. B04)	L8/SP.10	4.62	White soft stone.	H. 13.3, W. 5.3, Dms. of narrow side (in section) 2.8 × 1.6
ΣT (cat. n. B01)	L4/SP.5	4.32	Marble.	H. 4.7, W. (with arms) 4.2, Dms. of neck base (in section) 2.3 × 2.7, Dms. of torso lower part (in section) 2.9 × 2.0
E (cat. n. B010)	L1/SP.3	5.87	Soft porous stone.	H. 16.8, W. (with arms) 5.4, H. of neck 4.4, W. of buttocks 4.4



The second typological category of the Lion's Cave figurines

consists of schematic figures with characteristic Cycladic affinities (AO4, A/BO1) (Fig. 26.7). Two examples were uncovered. The first figurine preserves a round neck and a roughly triangular head sloping backwards. Close parallels are again found at the Kephala cemetery.⁴² These figurines are considered to be the forerunners of the folded-arm figurines of the early Cycladic period.⁴³ The second figurine of type 2 preserves an almost triangular head with backward inclination, a long cylindrical neck, a flap-like arm and a part of the body. Some characteristics of the figurine are reminiscent of the Louros type of Early Cycladic I.⁴⁴

The shape of the head and other characteristics of these two figurines find parallels among marble examples known from Dimini, Sesklo and other Thessalian sites.⁴⁵

Only one figurine belongs to the third category (AO3). It is also schematic and it has a cylindrical piece of clay for the neck/head and a triangular projection as an arm (Fig. 26.8). Although the face is either not well preserved or not represented at all, it implies some relations to some Thessalian⁴⁶ or Peloponnesian⁴⁷ figurines.

All the figurines from layers 5 and 6 were made of clay. They were all found broken.⁴⁸ Some were better fired (A/BO1, AO4) while some torsos were very crumbly (AO2, AO7). Some examples like AO4 bear evidence of surface treatment (well-polished and slipped?).

Only one figurine preserves some anatomical detail (type 4, AO8). It is also only partly preserved (one leg and lower body). Unfortunately, it was detected exposed in the south profile of trench A (Fig. 26.9; see also Table 26.4). It has a thinner upper body in relation to the robust cylindrical legs and hips-buttocks.⁴⁹ It is broken or flaked off in the place of the genitals, even though the area still appears slightly raised, possibly implying that the figurine was originally manufactured with male genitals. However, this cannot be said with certainty. As far as its lower part is concerned, it resembles the human figures that constitute the relief

decoration of a pithoid vase found in the Cave of Tharrounia, Euboea.⁵⁰

Figurines made of stone constitute the fifth type of the Lion's Cave figurine grouping (Fig. 26.10). Each one of these has its own particular characteristics. From layer 8 in trench A comes a worked and irregularly shaped piece of white stone which, despite its differences with the well-known acrolith type of figurines, seems to be correlated with them (BO4).⁵¹ Its width is even throughout, *i.e.*, it does not taper towards the bottom. It is also cut to become thinner at what seems to be its lower back surface.

Another stone (marble) figurine of schematic type was uncovered in the western extension of trench A, trench ΣT (BO1). It was again deposited below a stone construction (layer 4), as were the abovementioned figurines. No other figurines were found nearby. Part of the rather thick cylindrical neck is preserved as well as the body with two mastoid-like projections as arms. It has parallels in the Makriyalos Late Neolithic II figurine assemblage,⁵² while it also shares common elements with an example from a site near Yannitsa in Northern Greece⁵³ as well as with another from Thessaly.⁵⁴

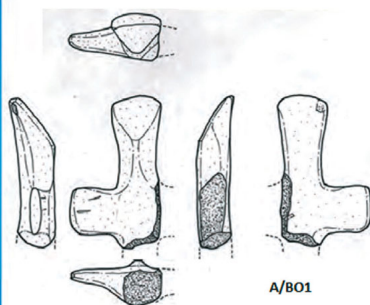


Figure 26.7. Figurines of type 2.

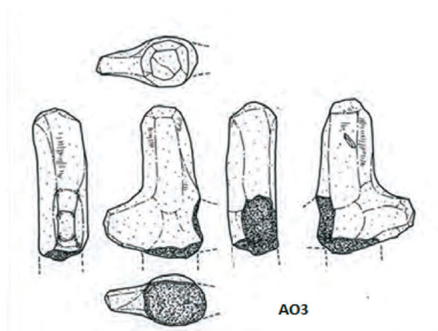


Figure 26.8. Figurine of type 3.

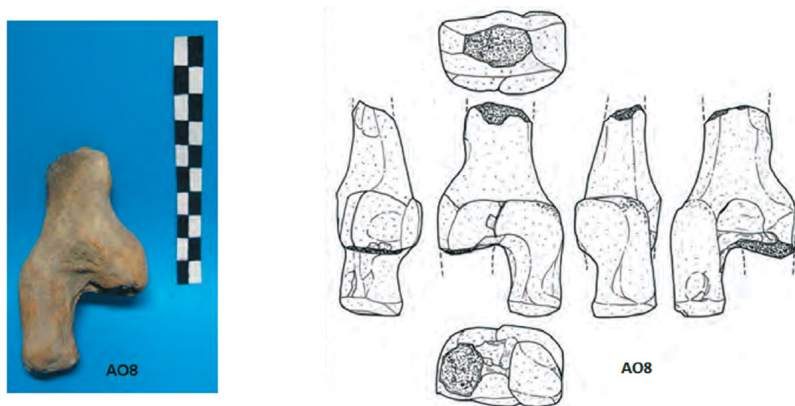


Figure 26.9. Figurine of type 4.

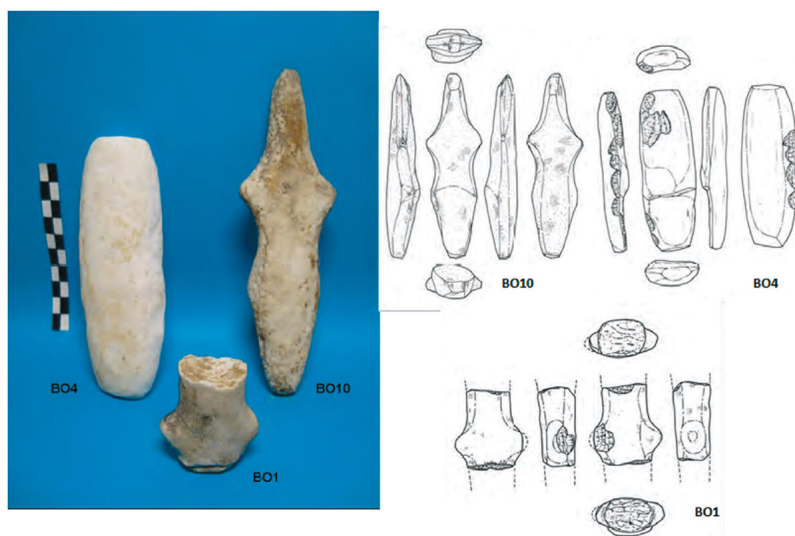


Figure 26.10. Stone figurines.

Finally, the stone figurine from trench E belongs to a schematic variety well attested at other sites dating to the same period (BO10). The prehistoric pottery that was found associated with it (red burnished and slipped ware and sherds of scoops) belongs to the Late Neolithic II. BO10 is the only intact specimen recovered. It has an elongated neck that thins out at the end and two triangular protrusions as arms. The figurine becomes thinner at

the waist and thicker at the hips/buttocks. Legs are not formed but the lower part is compact, gradually becoming thinner towards its triangular ending. Parallels can be found in the Late Neolithic II phase of Makriyalos,⁵⁵ at several Thessalian sites⁵⁶ as well as in Central Greece.⁵⁷

The Neolithic figurines from the Lion's Cave follow the general pattern and typological characteristics of the material known from other sites. The represented human figure is abstract, except for one clay example that bears evidence of some anatomical details.

There is no indication of a specific fragmentation pattern, at least judging by the preserved body parts. Torsos and heads (upper parts) are more common, however lower parts, legs and arms are also present.⁵⁸

The figurines briefly presented above were found just below two stone layers (layer 4 and 7) in close association with them (the clay figurines) as well as with other artefacts.⁵⁹ With the exception of one stone figurine (BO4) that was found with what can be considered as its front part facing the earth, all other figurines either made of stone or of clay were found in a horizontal position facing upwards.

More specifically, after the removal of layer 4 (stones), figurines (A/BO1, AO1, AO2, AO3, AO4) and other finds appeared within a clay/sandy layer (see [Fig. 26.3](#)). As is evident from [Table 26.4](#) and [Figure 26.5](#), (the depth at which the figurines were found ranges between 4.40–4.45; they were also concentrated within a 10 × 40cm area) most of the clay figurines were found together. Minor differences in depth are due to the inclination of the layer. The clay torso AO1 was found together with a cylindrical handle, a small group of other sherds and a large flint blade. Clay figurine AO3 was associated with pottery sherds. Clay figurines AO6 and AO7 were found close together associated with some sherds and a few animal bones. Pottery included bases and body sherds: red burnished, a handle with relief decoration, a strap handle *etc.* The stone figurine (BO4), which was found further below (L 8) in the

same trench (A), was also found inside a clay/sandy layer, and it was found again immediately following the removal of another stone layer. It was found associated with a polished stone axe, part of a conical base probably belonging to a fruit-stand and an obsidian tool (see Fig. 26.5), forming an altogether consistent context. Some more sherds as well as a few animal bones were also spotted at some distance from this concentration of finds. An animal figurine or pot (AO10, not presented here) from the same layer as BO4 was associated with other finds, such as pottery sherds, bone tools, shells *etc.* Stone figurine BO1 was found at the extension of trench A (trench ΣT), once more directly below the stone layer 4. From the same layer come few animal bones and pottery sherds. The stone figurine BO10 was discovered in another area of the cave (trench E), below a rock, associated with red burnished and incised pottery sherds of the Late Neolithic II, some of which belong to scoop fragments.

This evidence indicates a repeated and special treatment of the figurines as well as a repeated depositional practice with specific connotations. While fragments of clay figurines were found associated with each other,⁶⁰ the ones made of stone, although always associated with other material remains, were never found with figurines of clay or stone. Nevertheless, both types, in most cases at least, were situated below what seems to have been a stone construction or fill. In relation to the associations of figurines with other classes of artefacts, we can comment further only on those cases that the evidence is clear. The layers that the figurines come from are those that contained most of the material excavated from the site. The excavated area was not large and all remains were more or less close one another. It may be of significance to note that very few sherds were matching each other and almost no whole pots were found. Stone figurine BO4 and clay figurine AO1 were associated with stone artefacts (flint blade, polished axe, obsidian tool) as well as with sherds, among which a cylindrical handle and a base of a fruit-stand. In these associations,

the basic and most common of the non-perishable raw materials used to make artefacts during the Neolithic are present. Taking into consideration the evidence discussed here together with what we know from other cave sites, it seems that a generalized pattern of the importance of cave use during the Late Neolithic emerges.

Discussion and conclusions

Neolithic cave use has mainly been studied independently without relating it in much detail to archaeological evidence coming from other kinds of sites.⁶¹

Caves have been chiefly studied as monuments, standing independently within ancient landscapes,⁶² as if they were not part of the wider settlement patterns and space use during the periods to which their use dates. This is clear enough in the study of caves bearing traces of Late Neolithic activity. An increase in cave use is evident in this phase and has been explained as a result of the adoption of a transhumant style of economy as well as of a systematic exploitation of the secondary products of animals.⁶³ Later Neolithic phases (from about the second half of the 5th until the first half of the 4th millennium BC) are characterised by fundamental changes associated not only with the use and significance of inter- and intra-site space but also with the production, circulation, consumption and deposition of material culture (metallurgy, gradual expansion of coarse wares, and so on).⁶⁴ Increased cave use during the Later Neolithic phases is not an independent phenomenon; rather, it is a reflection of the general changes related to the use of space during these periods.⁶⁵

Caves as well as other locations in the landscape gain their meaning and social significance through human action.⁶⁶ While architecture is the means for shaping relations between humans and their surroundings, it is the material culture that plays this role in the case of caves.⁶⁷ Hence, it is important to explore in all possible detail the material culture associations, depositional practices and fragmentation patterns present in caves in order to

understand their role and significance as sites in a network of locations used by humans. A contextual approach is, therefore, useful in this case. In this respect, the systematic study of material remains from several caves such as Tharrounia on Euboea,⁶⁸ Sarakenos in Boeotia,⁶⁹ Cyclops Cave in the Sporades,⁷⁰ Ayia Triada in Karystos⁷¹ and Drakaina on Kephallonia,⁷² among other examples, produces evidence of a complex relation between Neolithic people and caves, which is evidenced through associations of material culture, depositional practices, structures inside caves, etc. It is becoming more and more apparent that specialised economic practices cannot stand by themselves in explaining the available archaeological evidence for the shifts present in relation to Later Neolithic cave use. It is a period characterised by further expansion of people into the landscape⁷³ while the household becomes more independent.⁷⁴ New sites appear now for the first time and they become arenas for the expression of new identities and (re)negotiation of power and social roles.⁷⁵

Within this general frame, it is not surprising that the figurines as well as other material culture remains were found at the Lion's Cave intentionally placed below what seem to be stone constructions or activity areas. Figurines detected during the excavation are of the abstract type as is the case of anthropomorphic figurines coming from other synchronous sites.⁷⁶ The evidence indicates that the stone figurines were placed in isolation from other similar specimens but the clay ones were found grouped together, associated in both cases with other remains (pottery sherds, lithics, animal bones). The Kephala type torsos as well as two examples with "Cycladic" characteristics were found together within a few centimetres of each other.

Due to their abstract form, Late Neolithic figurines have been considered as representing a static form of the human figure as opposed to the active figures of the earlier Neolithic phases.⁷⁷ If one takes into consideration the archaeological evidence available

and the overall changes seen in all aspects of material culture, as well as use of the landscape and meaning during the phases examined here, one could possibly say that the static/abstract form of the human figure probably reflects the fluid world in the process of transformation in which they were manufactured.⁷⁸ Neolithic figurines of the period could possibly reflect their changing social reality, a social order under negotiation and reconstruction. Material remains like figurines have been considered as often used to proclaim identity and status, carrying meanings and symbols into these realms.⁷⁹

Further investigation is required to discover whether clay figurines placed together in specific contexts in the Lion's Cave represent an old and fixed social order, while the stone figurines reflect the new social dynamics negotiating (therefore without declaring specific details) their role in a changing world.

Notes

1 I would like to thank my friend and colleague Dr Ž. Tankosić for reading the text and making useful comments. Drawings were made by D. Yamaguchi.

2 Karali *et al.* 2005; Karali *et al.* 2006; Wickens 1986, 175.

3 In the case of the Tharrounia Cave in central Euboea, three trenches (A, B, C) yielded at least 38,000 sherds (Sampson 1993a, 189). About 23,000 sherds come from trench C of the same cave site (over a thousand from one layer alone), all belonging to the later part of the 5th millennium (Late Neolithic IB phase, according to Sampson's terminology, see Sampson *et al.* 1999; Table 26.2). See also pottery statistics from other excavated caves: Cyclops Cave (Sampson 2008a, 66–7); Sarakenos Cave (Sampson 2008b, 285–90); Franchthi Cave (Vitelli 1993, 31–5; Vitelli 1999, 8–10). It has to be noted here that direct comparisons are meaningful when comparable units of removed sediment are available.

4 See Orphanidi 1998 for the presence of figurines in cave sites.

5 Biehl (1996, 163) suggests that to understand the setting and situation in which a figurine was used, the more accurately we can reconstruct a figurine's use life, how it might have been altered,

modified, broken, used, repaired, decorated, disposed *etc.*

6 *e.g.* Evans and Renfrew 1968, figs 42–3; Sampson 1997, fig. 64; Sampson (ed.) 2002, figs 76–8.

7 Coleman 1977, pl. 89, BC–BP.

8 Mavridis and Tankosic 2009, 53.

9 Sampson 2008b, figs 125–6.

10 Sampson 1993a, figs 158–61.

11 Immerwahr 1971, pl. 11.

12 Mavridis and Tankosic 2009, 53.

13 Coleman 1977, pl. 28.

14 Zachos 2008, 16–17.

15 Sampson 1993a, pls 155–6.

16 Immerwahr 1971, pls 1–5.

17 Lambert (ed.) 1981, figs 165–6, 228.

18 Zachos 2008, fig. 19, no. 41/81.

19 Sampson 2008b, figs 129, 131, 285–6, 311.

20 Sampson 1993a, fig. 121, 9–12.

21 Zachos 1999, 153.

22 Coleman 1977, pl. 44, A–B.

23 Sampson 1993a, pls 151–2.

24 Immerwahr 1971, pl. 8.

25 Lambert (ed.) 1981, pl. xxx, figs 171–4.

26 Mavridis *et al.* 2013a, Fig. 16.14.

27 Coleman 1977, pl. 84, BG, BH.

28 Immerwahr 1971, pl. 13, no. 205.

29 Sampson 1993a, figs 174–7.

30 Coleman 1977, pl. 28.

31 Sampson 1993a, fig. 183, 1–4.

32 See Tharrounia Cave (Sampson 1993a, figs 109, 115).

33 See the Pangali site, Mavridis 2006, pl. 26, 63–6.

34 Sampson 2008b, fig. 88.

35 Sampson 2008b, fig. 58.

36 Sampson 1993a, figs 59a–b, 61–3.

37 See Mavridis 2008, 119–20 with references.

38 See for example Sampson (ed.) 2002, 131–40; Mavridis 2008, 114, Mavridis 2010, 21.

39 For chronological aspects of the Late Neolithic see Coleman 1992; Demoule and Perles 1993, fig. 2; Johnson 1999, 333;

Sampson *et al.* 1999; Mavridis 2006, Mavridis 2010; Tomkins 2007b, tab. 1.

40 For the identification of the figurines' sex, see Nanoglou 2005; Nanoglou 2010 with further references, also Biehl 1996, 162. For the concept of gender in figurine studies see Mina 2008 with further references.

41 Coleman 1977, pl. 72

42 Coleman 1977, pl. 73, no. 128, 202.

43 Coleman 1977, 105–6.

44 Mavridis 2007 (2009), 271, see for example Renfrew 1991, fig. 33. For the presence of elements of the Louros type variety in the material of other Neolithic sites such as Chaironeia, Dimini, Sesklo or even Crete, see Tzavella-Evjen 1986, 8–14 with further references.

45 Gallis and Orphandi 1996, 162–5; Hansen 2007, tab. 100, 7, 8, 13; Tsountas 1908, tab. 37.7, 12.

46 Wace and Thompson 1912, fig. 127c, g.

47 Talalay 1983, figs 33–4.

48 It is not possible to say if the figurines presented here were intentionally fragmented prior deposition. Beyond one torso of Kephala type that was found in two pieces, no other fragments were matching. For the deliberate fragmentation of Neolithic figurines, see for example Chapman 2000a, 68–79.

49 For a generally similar configuration in the area of the hips-buttocks see Hansen 2007, tab. 86, 102 with examples from the Peloponnese and central Greece.

50 Sampson 1993a, fig. 202.

51 For an interpretation of the acrolith figurines with an emphasis on the head, see Nanoglou 2006, 169, also for the acroliths see Marangou 1992, 34–5, 143. For the identification of regional differences in relation to the acrolith and other type of figurines, see Nanoglou 2006, 169.

52 Nanoglou 2008, 322–3; Nanoglou and Pappa 2009, fig. 3.

53 Merousis and Stefani 2006, fig. 14.

54 Gallis and Orphanidi 1996, 386, 388.

55 Nanoglou and Pappa 2009, fig. 3.

56 Gallis and Orphanidi 1996, 390, in relation to formation of the lower part; see Hansen 2007, tab. 100, 4, 5, 13, 17; Skafida 1992,

168; Tsountas 1908, tab. 37, 4–5, 12.

57 e.g. Spyropoulos 1973, fig. 8.

58 See Talalay 1993, 83 for an interpretation of broken figurine legs from (Middle Neolithic) Southern Greece.

59 The deliberate deposition in the floor sub-surface is a common practice in the Balkan Neolithic, see for example Chapman 2000a, 51–4; also Marangou 1996, 177; Stratouli 2005, 126. At Thermi most finds come from below a stone lined level, see Pappa *et al.* 2011, 280.

60 Nanoglou 2008b, 318, 324 refers to other cases of figurines that seem to have been used in groups in the earlier Neolithic phases (see also Bailey 2005, 178), however after the evidence from the Lion's Cave it seems that this phenomenon continues into the Later Neolithic phases. Individuality, on the other hand, can be predicted for the stone figurines that were not found associated with other figurines. In general, there is scarce evidence for how large groupings were formed and the contextual information is also rare, see Marangou 1996, 180. However, relatively recent evidence indicates the concentration of large quantities of figurines, for example Sarakenos Cave (Sampson 2000, 134–5; Katsarou-Tzeveleki and Sampson 2013), Ampelakia in North Greece (Chrysostomou 2003, 489–90), for Makriyalos, see Besios and Pappa 1995, 26.

61 Mavridis *et al.* 2013b, 1.

62 See Mavridis *et al.* 2013b; for caves as monuments Barnatt and Edmonds 2002; also Stratouli 2005, 124.

63 e.g. Diamant 1974; Douzougli and Zachos 2002; Greenfield and Fowler 2003; Halstead 1996a; Halstead 1996b.

64 Hamilakis 2003; Mavridis 2006; Mavridis 2007 (2009); Mavridis 2016; Mavridis in this volume.

65 Chapman 1991, 155; Kotsakis 1999; Mavridis 2006; Mavridis 2007 (2009), Mavridis forthcoming a; Mavridis in this volume; Nanoglou 2001, 309.

66 Mavridis *et al.* 2013b, 1.

67 Bradley 1998a, 21, 126; Mavridis *et al.* 2013b with references.

68 Katsarou-Tzeveleki and Sampson 2013.

69 Katsarou-Tzeveleki and Sampson 2013.

70 Katsarou-Tzeveleki 2008; Katsarou-Tzeveleki and Sampson 2013.

- 71 Mavridis and Tankosic 2009; Mavridis & Tankosic 2013.
- 72 Stratouli 2005, 123–32.
- 73 Mavridis 2006; Mavridis 2007 (2009); Mavridis 2016; Mavridis in this volume.
- 74 See for example Nanoglou 2001, 309.
- 75 Hamilakis 2003; Mavridis 2006; Mavridis 2007 (2009); Mavridis forthcoming a, b; Mavridis in this volume.
- 76 See Skafida 1992, 177 for Dimini. From the Dimini material it is inferred that naturalistic figurines are not very common but present, also Nanoglou 2008b.
- 77 Nanoglou 2008b, 327.
- 78 See for another view Nanoglou 2008b, 324, 327.
- 79 Bailey 2005, 39.

The Later Neolithic use of the cave Oinoe IV, at Marathon (Attica, Greece): Preliminary report

Alexandra Mari¹

Introduction

The once fennel-covered plain of Marathon lies at the northeastern end of Attica, beside the South Euboean Gulf, and east of the steep hills of Agri(e)liki, Aforismos, Profitis Ilias, Kotroni and Staurokoraki.² The important investigation conducted by D. Theocharis in the middle of the 1950s proved that the area had been occupied since the Early Neolithic period. Under the modern city of Nea Makri, Theocharis revealed a small part of a large settlement dating to the Early, Middle and Late Neolithic phases which had once existed there.³ Twenty-three years later, a rescue excavation was conducted under the direction of M. Pantelidou, in a section of a privately-owned plot where a new structure was about to be built.⁴ Despite the limited area excavated, the finds were impressive. Storage pits, floors belonging either to dwellings or storerooms, stepped entrances, remnants of stone foundations with mud-brick walls and incorporated wooden posts, drainage ditches, hearths, postholes, traces of plaster, and plenty of ceramics were found in successive layers attributed to 12 habitation phases dating, according to the excavator, from the end

of the 7th millennium until approximately 4000 BC.⁵

Additional evidence proving Neolithic occupation at Marathon resulted also from Theocharis's research at Kato Souli and Brexiza.⁶ A few years later E. Mastrokostas collected some Neolithic sherds from the surface of a tell at Plasi, where he discovered building remains dating from prehistoric to Roman times.⁷ Mastrokostas also located traces of a prehistoric settlement (whose earlier phase seemed to date back to the Final Neolithic) near the main road at Kato Souli.⁸

The discovery of architectural remains underneath a layer of Early Helladic buildings during the construction of the Olympic Rowing Centre (at Kato Souli), by the late M. Oikonomakou of the former 2nd Ephorate of Prehistoric and Classical Antiquities, supplemented the picture of Neolithic habitation in the area.⁹ The same archaeologist brought to light foundations of a Neolithic house, along with partially preserved figurines and legs of Late Neolithic rhyta, from a site called Boriza, which lies southeast of the southern foot of the Kotroni Hill.¹⁰ The finds are exhibited at the Archaeological Museum of Marathon and were found during works in preparation for the Olympic Games of 2004, along the main Marathon– Athens road of the Olympic marathon race.¹¹

The Cave Oinoe IV

While investigating the hill of Oinoe in 1958, and possibly having taken into consideration the oral tradition and the testimonies of travellers from the 19th century, I. Papadimitriou was informed about the existence of a well-known cave at the northeast side of the hill. It is highly possible that he visited it. It was the so-called “Oinoe IV”, discussed by J. Wickens in his doctoral dissertation.¹² The persistent research of a technician led Papadimitriou farther west to the two entrances, buried by soil and limestone boulders, of another large cave that proved to be the Cave of Pan mentioned by Pausanias (1.32.7) based on the location of a marble stele.¹³

Within the scope of recording the coordinates of caves of

archaeological interest in Attica, the Ephorate of Palaeoanthropology and Speleology located the Cave Oinoe IV in 2009 and conducted an inspection. The discovery of intensively disturbed deposits by looters resulted in the accession of Oinoe IV and the nearby Oinoe II (or the Cave of Pan) in the “Schedule for Activities in 2010” of the Ephorate with the objective to conduct a rescue excavation. A collection of surface ceramics from Oinoe IV was made in October 2010,¹⁴ and an excavation was conducted for fifteen days in May 2012.¹⁵ The excavation was financed by the Institute for Aegean Prehistory, with the additional support of the Municipality of Marathon.



Figure 27.1. Panoramic view of the terrace and the entrances to the Oinoe IV Cave (K. Xenikakis, 2012).

Oinoe IV is a cave with a total area of approximately 315 sq m. It consists of two narrow and low entrances, opened at the northern and the southern end of a terrace measuring 7x10 m and covered at its northern half by collapsed limestone blocks (Fig. 27.1). The deposits in all the chambers of the cave were covered by a thick layer of stones mixed with fragments of stalagmites and

stalactites (speleothems) of different sizes. Among them were a lot of sherds along with several flat, mainly schist stones, most of which were probably used by the prehistoric occupants of the cave.

Three thousand, one hundred and forty-nine (3149) ceramic fragments, weighing 170 kg were collected from the surface of the deposits in the chambers of Oinoe IV in 2010; 20% came from chamber 1, 49% from chamber 2, 17% from chamber 3 and 14% from chamber 4 (Fig. 27.2).¹⁶

The overwhelming majority of the material is dated to the Late and Final Neolithic (Fig. 27.3). Most of the fragments recovered belong to large, wide mouthed, open or closed, coarse-ware thick-walled vessels. Sometimes they are decorated with thin intersecting relief bands, which may carry circular or oval impressions in imitation of ropes. Low relief bands with hollow upper surface, or a wide raised band around the rim decorated with incisions, grooves, impressions and/or dots are also found. The percentage of relief-decorated material amounts to 1.57% of the surface ceramics.

The painted (matt-painted, bichrome painted, red-on-white) or burnished (black and grey burnished, red pattern burnished, heavy burnished varieties) vessels comprise 1.51% of the collected pottery. The painted decorative patterns consist mainly of parallel or intersecting thin, rectilinear bands. A few examples of zig-zag patterns occur; curvilinear motifs are attested only once or twice.

A fragment of a *réchaud*-type vessel¹⁷ has also been identified as well as two fragments from the rim and the body of rhyta.¹⁸

As regards the conservation and the manufacture of the pots, twelve sherds (*i.e.* 0.38% of the ceramics collected),¹⁹ bear complete or partially preserved mending holes. Three coarse-ware base sherds preserve mat impressions,²⁰ while several others have big inclusions in their fabric. Traces of joined slabs incurred in the construction of coarse ware vessels can be discerned in the sections of some fragments. Impressions caused by the attachment

of lugs or handles can also be identified on some wall fragments. Neither firing clouds on the surfaces nor variably coloured layers within the cross-sections of vessels are common. Despite the existence of sherds with blackened walls caused by a prolonged firing, or by use over a fire, it seems that generally the last stage of production, to obtain hard-fired clay vessels, was carefully controlled.

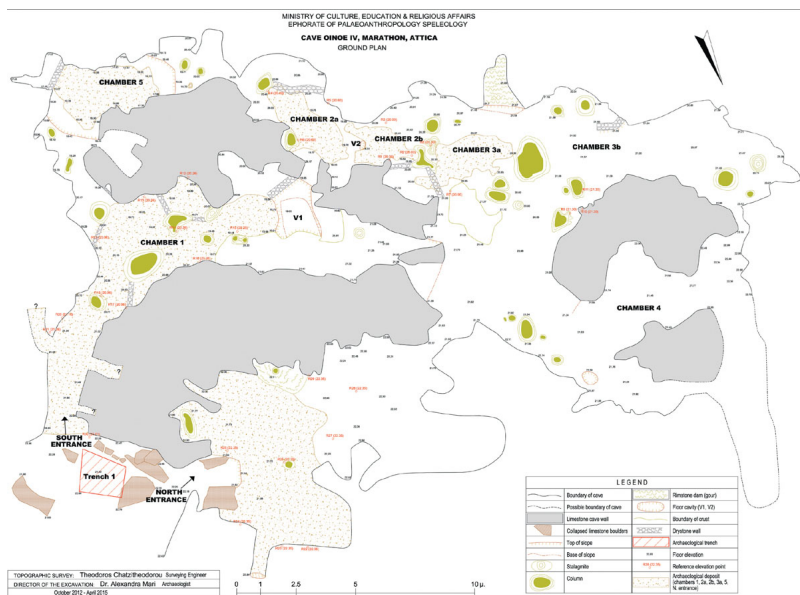


Figure 27.2. Plan of the cave Oinoe IV (Th. Chatzitheodorou, 2012–5).

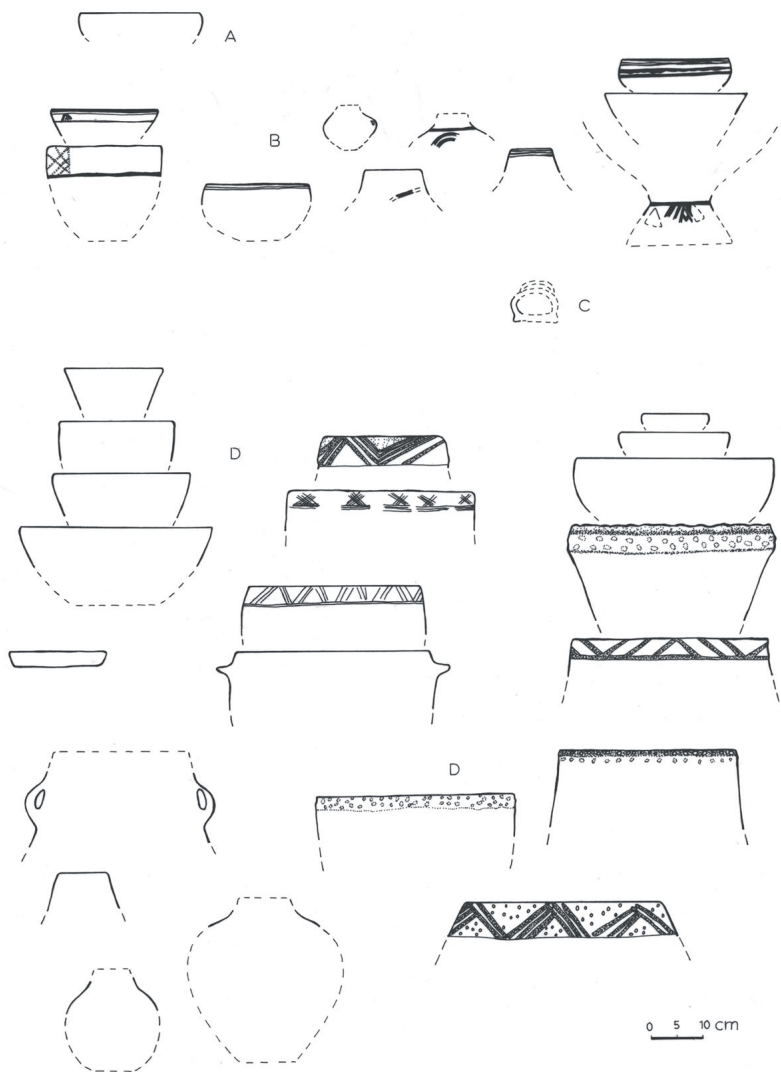


Figure 27.3. LN and FN pottery shapes from the Oinoe IV Cave, based on surface finds (A. Mari 2011). A: black burnished vessel; B: matt-painted and bichrome painted vessels; C: “rhyton”; D: plain or decorated coarse-ware vessels.

The decorated Neolithic sherds recovered from the survey suggest that the cave was used from the end of the 6th until the end of the 5th millennium BC. The numbers of fragments

belonging to matt-painted vessels seems to imply that the peak of this use can be dated from 5200 to 4800 BC, *i.e.* during the first phase of the Late Neolithic.²¹ Use of the cave continues, though less intensively, during the second phase of the Late and the beginning of the Final Neolithic (between 4800 and 4300/4200 BC). The abundance of fragments of large coarse pots within a specific chamber (1), suggests that part of the cave was used as a storeroom.

Chamber 1, as well as the “corridor” connecting the northern entrance to chamber 4, were excavated in 2013. The excavation of the small underground room V1 (Fig. 27.2) opened at the western edge of chamber 1 with a north–south axis was also completed in 2013. However, the following should be noted: according to the 2012 excavation data, the finds retrieved amounted to 380 kg of ceramics, several fragments of bone,²² 60 flaked stone tools, 1268 mollusc valves or gastropod shells, 13 minor objects, and one figurine.²³ Given the current data, the most intensively used area of the cave during the Neolithic appears to be the one farthest from the entrances: the dark chamber 2b. This place is separated from chambers 3, 1 and 5, formed to its west, north-east and east respectively, only communicating with them through vertical oblong openings in the curtain-like speleothem wall. Although it is a small area (3.30×1.70 m), it preserved (compared to the excavated rooms 5, 2a, and 3a) the thickest deposit measuring from 0.61 to 0.88 m.²⁴ Within this chamber we found 42% of the pottery, 53% of the flaked stone tools and 76% of the *Cerastoderma* valves, recovered during the 2012 excavation season. In the deposits of the same chamber we discovered three spindle whorls, three small polished stone artefacts, two bone tools and one small stone phallus pendant, which constitute 69% of the minor objects found in the 2012 excavation. The thin deposits (0.17–0.43 m) of the adjacent chamber 2a contained the one and only fragmentary bichrome-painted seated figurine of the excavation.

It should be noted that from the very beginning of the excavation it was clear that the deposit in chamber 2b was differentiated at its eastern edge where it was especially loose and dry. After completing the excavation, it was seen that the reason was a natural vertical opening in the wall, which borders the eastern edge of the chamber. The opening measures 0.37×0.55 m and leads to a small underground elongated room (Fig. 27.2: V2) with a north-east to south-west axis measuring 5 m maximum length and 2.5 m maximum width. A lot of the deposit, containing archaeological finds, had rolled into the interior of this room from chamber 2b, where it had been converted into mud by constant dripping of water from above.

It is not clear yet whether this underground room of chamber 2b played some special, preferred role in the cave, or if the room was somehow related to the similar one in the nearby chamber 1.

It should finally be recorded that a small percentage of the surface ceramics dates to the Early²⁵ and the Late Bronze Ages.²⁶ Finds of the historic periods were also found and collected. We mention here two joining fragments belonging to a terracotta lamp of the 3rd century AD (found in a natural niche formed between chambers 3 and 4), a terracotta loom-weight (from chamber 2b) of the 4th century BC,²⁷ and a sherd from a bee-hive (found in chamber 3). A number of fragments of roof tiles were also found in all the chambers except chamber 5. Most of them can be assigned a Classical to Hellenistic date but there are also some dating to the Roman, Medieval and Early Modern periods.²⁸ The excavation brought to light more sherds belonging to the above mentioned historic periods and is evidence for a small-scale use of the cave after the Neolithic phases.

Conclusion

It is certain that the completion of the excavation at Oinoe IV and the excavation of new trenches in the deposits of the Cave of Pan located less than 120 m to the west will clarify the function of the

caves and their connection, and provide, along with studies of the geological and environmental settings, valuable information for the occupation of the area during the later Neolithic.

The ongoing research at Mount Agrieli and the rest of the hills which surround the plain of Marathon has already revealed other caves used at various times during the historic era. We still have to see if there are more caves with remains of prehistoric use in the area that may change the data we currently have.

Notes

1 I thank the organising committee for approving my late application for participation in the conference. I am indebted both to Dr E. Panagopoulou, director of the former Ephorate of Palaeoanthropology–Speleology of S. Greece and to Dr A. Kyparissi, former director, for supporting the project of rescue excavation at Marathon. I am grateful to the archaeologists P. Fotiadi and L. Siskou of the former 2nd Ephorate of Prehistoric and Classical Antiquities for information and discussions about recent Neolithic finds at Marathon (see notes 5, 10 and 11 below) as well as to Y. Kleftakis, Chief Guard of the Archaeological Museum of Marathon for clarifications relevant to the names of regional sites. Warm thanks are due to Professor J. Wickens of Lawrence University (Wisconsin, USA), and the archivist of the American School of Classical Studies at Athens Dr N. Vogeikoff Brogan for allowing examination of the group of sherds A113, which was collected from Oinoe IV.A. Vlachopoulos, speleologist of the caving club THISEAS, provided important help in the exploration of the small room V2 in chamber 2b. The topographical plan of the cave ([Fig. 27.2](#)) was made by tireless T. Chatzitheodorou, surveying engineer of the former Ephorate of Palaeoanthropology–Speleology of S. Greece. [Figure 27.1](#) was photographed by K. Xenikakis. The English was edited by J. Wickens, to whom I am indebted.

2 Petrakos 1995, 1–2; Steinhauer 2009, 25–6.

3 Theocharis 1954; Theocharis 1956.

4 Pantelidou-Gofa 1991, 6.

5 Pantelidou-Gofa 1991; Pantelidou-Gofa 1995. Rescue excavations have been conducted since 2009, under the former 2nd Ephorate, at

a plot near the one excavated by Mrs Pantelidou, and at the shore (see Fotiadi forthcoming a; Fotiadi forthcoming b; Fotiadi *et al.* 2015).

6 Theocharis 1956, 1.

7 Mastrokostas 1970, 18; Petrakos 1995, 55–7.

8 Mastrokostas 1974.

9 Oikonomakou 2007, 85; Oikonomakou 2009b, 273.

10 Oikonomakou 2009a; Oikonomakou 2010a, 377; Oikonomakou 2010c, 387. See also Mazarakis – Ainan 2000 for Neolithic finds at a plot next to the one excavated by Oikonomakou. Ceramic finds with Final Neolithic crusted decoration are mentioned from the nearby Early Bronze Age cemetery at Tsepi (Pantelidou-Gofa 2004, 19; Pantelidou-Gofa 2005, 301, 317, 324, 326; Petrakos 2002, 22). Final Neolithic finds from Tsepi are also mentioned in Pantelidou-Gofa 2015; Tsirtsoni 2015.

11 Oikonomakou 2009b, 276; Steinhauer 2009, 32–3. Traces of a Neolithic settlement were also unearthed by the former 2nd Ephorate (see Fotiadi forthcoming b), at a plot north-east of the Mycenaean tholos tomb at Arnos (for the tholos, see Soteriades 1934a; Soteriades 1934b; Soteriades 1935; Soteriades 1936, 92–3, 101, 105; Orlandos 1959b).

12 Wickens 1986, 233.

13 For the rediscovery of the Cave of Pan in 1958 by Papadimitriou's technician Karavassilis, see Petrakos 1993, 67–8. For the excavation of the cave in 1958, see Orlandos 1959a, 15; Papadimitriou 1959a, 587; Travlos 1988, 218; Vanderpool 1958, 321.

14 The collection was done by the author and the technician of the Ephorate of Palaeoanthropology–Speleology, C. Michalakopoulos.

15 The excavation was accomplished with the participation of archaeologist G. Philippopoulou, students Y. Chatzopoulos and K. Kiourt, technicians M. Ayiazi and N. Karanikas, and the chief technician of the Ephorate of Palaeoanthropology–Speleology H. Boughadis.

16 The numbers of the chambers correspond to the ones written by recent “visitors” with a fluorescent paint on the walls of the cave.

17 It was found within chamber 1. For a reconstruction of the shape see Sampson 2002, 71–3.

18 They were found in chambers 1 and 3, respectively. The first has an almost hemispherical body, a ring foot and perhaps a basket handle. The second was decorated with incised and dotted motifs. For parallels see Sampson 1993a, 89–91, fig. 76, pls 59–63.

19 Eleven of them belong to coarse-ware vessels (one of which bears traces of red painted decoration). The last one comes from a matt-painted pot.

20 One of them bears remains of red painted decoration above its base.

21 Demoule and Perlès 1993, fig. 2.

22 According to Dr A. Papathanasiou, the human skeletal material from the Cave Oinoe IV (2012) consists of approximately 50 fragments of human bones completely fragmentary and comingled. The minimum number of individuals identified is four. The whole material (from the excavation seasons 2012 and 2013) will be studied by anthropologist A. Tiliakou. The animal bones recovered in 2012 are estimated to be more than 1000 fragments. The material (of both excavation seasons) will be studied by Dr K. Trantalidou.

23 The absence of stratigraphic evidence (due to the work of looters) in chambers 5, 2a, 2b, and 3a, excavated in 2012, resulted in the decision to not move the excavated soil for dry sieving or to gather samples of soil for flotation, as originally planned. The excavated soil was dumped (after excavation and careful search) within the cave, in natural niches, in front of which we constructed dry stone walls by using the stones covering the deposits (see [Fig. 27.2](#)).

24 Wedged earth, sherds and sea shells are visible between curtain-like ripples of the speleothems which constitute the northern and western borders of chamber 2b. This material is found at a level higher than the one where the excavated deposit was situated. The wedged deposit testifies to the original height of the deposit, before its serious damage by looters, who removed large amounts of earth from chamber 2b and threw it within room V1.

25 EH I and II sherds from incurving bowls and bowls with a horizontal ridge below the lightly incurving rim, a bowl with an inturned rim, and a sauceboat spout have been recorded up to now (see for example: Kakavoyanni et al. 2009b, fig. 10 a–b; Pullen

1995, figs 4.76, 6.98. 101.104, 13.229–32.235.236, 19.344).

26 Six sherds are assigned to the Mycenaean period according to Dr C. Marabea. They belong to at least two different vessels one of which was a plain round kylix.

27 Assistant professor J. Bravo of the University of Maryland (USA) is scheduled to study finds dated to historic times.

28 One hundred fragments were recorded, most of which are dated to pre-Roman times. The excavation data do not suggest that they were incorporated in a structure (*e.g.* wall). The material is under study by specialist A. Koskinas.

The end of the Neolithic in East Attica: New data from Kontra Gliate (Kiapha Thiti) and Thorikos Mine 3

Margarita Nazou¹

Introduction

This paper discusses two as yet unpublished Final Neolithic (FN) ceramic assemblages in East Attica: Kontra Gliate (also known as Kiapha Thiti) and Thorikos Mine 3. The new data is contextualised within previous research to reconstruct a picture of FN pottery production, consumption and exchange across Attica and its neighbouring islands (Southern Euboea, Northern Kea and Aegina) (Fig. 28.1).²

The Neolithic in Attica is not *terra incognita*, but there is still little research when compared to later periods. Neolithic remains have already been reported since the 1930s, when the Italian and the American School excavations on the slopes of the Acropolis yielded architecture, pottery and stone tools.³ Our knowledge of the settlement patterns and material culture has improved in the last few decades, thanks to rescue excavations and several site publications. A few settlements of the Early Neolithic (EN) have been excavated in the Mesogaia,⁴ the largest plain in Attica which would have provided good arable land for early farmers. Middle Neolithic (MN) remains have also been reported.⁵ A significant

increase in the number of sites is observed during the 5th and 4th millennia BC (Late and Final Neolithic), when settlement spreads into the mountains and the neighbouring islands.⁶ Salamis was inhabited already from the Late Neolithic, when it was still connected to Attica via narrow strips of land.⁷ In the Karystia, Late Neolithic remains have been excavated at the Ayia Triada Cave, and there are many Final Neolithic sites and findspots.⁸ Northern Kea was colonised in the Final Neolithic.⁹

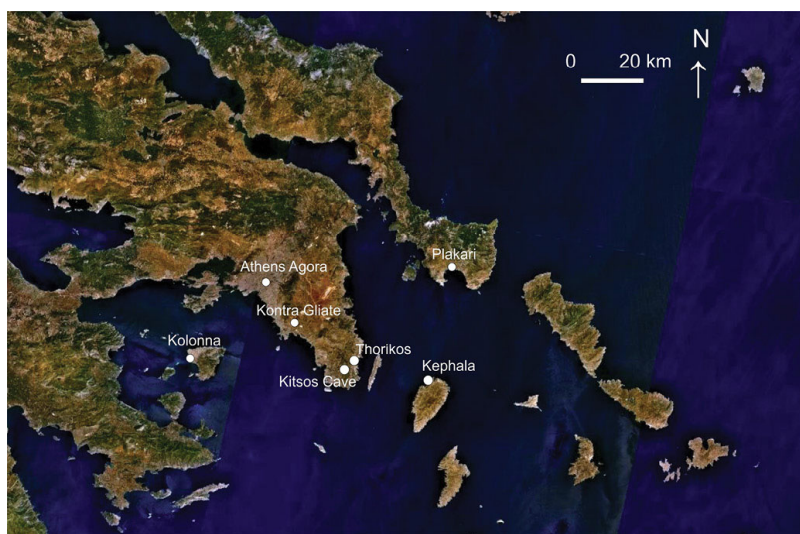


Figure 28.1. The case study assemblages (map after NASA World Wind).

The expansion of settlement in the 4th millennium BC and the increasing evidence for the exploitation of the Lavrion ores hint at a significant role for Attica in Southern Aegean social and cultural transformations, but its precise nature is still unclear.¹⁰ Attica's crucial geographic location, connecting several Southern Aegean regions, may have favoured access to interregional exchange networks. These networks were already in action in the late 4th millennium BC; Y. Papadatos and P. Tomkins report a significant number of ceramic imports from Attica or the North-Western Cyclades to Kephala Petras on East Crete, indicating long-distance

maritime interaction.¹¹

In order to explore the economic, social and cultural transformations that took place in Attica during the late stages of the Neolithic we need to examine the region's internal and external connections through inter-site comparisons. Pottery can be a very informative category of artefacts, since it is present in large numbers at all excavated sites. By investigating the ceramic styles produced and consumed in Attica, the Karystia, Northern Kea and Aegina during the 4th millennium BC (also known as the Final Neolithic or Late Neolithic IIB), some aspects of economic and social interaction in this study region can be reconstructed.

A consideration of sampling issues as well as contextual information is necessary to make valid inter-site comparisons. All case study sites were excavated at a time when neither sieving nor systematic evaluations of artefact recovery were conducted. This most likely resulted in biases towards the recovery of decorated wares. A further issue concerns contextual differences. In particular, the pottery from Kontra Gliate, Plakari and Kephala is associated with settlement architecture; Kephala also preserves a cemetery.¹² The pottery from the Athenian Agora was recovered in the fill of twenty wells and in one FN grave.¹³ The older excavations at Kolonna yielded stray Final Neolithic sherds in the foundations of Bronze Age buildings.¹⁴ Similarly, the small assemblage excavated from square I53c5 on the Velatouri acropolis at Thorikos was recovered below later architectural remains.¹⁵ Finally, the Neolithic sherds from Mine 3 were stray finds within the rubble of the mine, which preserves evidence for exploitation during the Early Bronze Age II period.¹⁶

Kontra Gliate

The first case study assemblage was excavated from the settlement of Kontra Gliate, a hill in Southern Attica, around 20 km south-east of the city of Athens. The site is a prominent acropolis, 189 m in height, which rises steeply from the coastal plain of Vari and

dominates the landscape between Hymettos, the South-Western Attic coast and the Mesogaia plain. The FN stratigraphy and architecture have been published by Lauter.¹⁷ A large terrace wall, a floor with a sunken pithos and a walled pit were excavated on the middle terrace of the acropolis (Fig. 28.2). The excavated strata yielded Final Neolithic pottery in association with the first period of occupation.¹⁸

The major ceramic fabric at Kontra Gliate, amounting to 51% of the diagnostics,¹⁹ contains sub-angular opaque white inclusions, identified as limestone and/or marble. There is also calcite-tempered pottery,²⁰ amounting to 17,5 % of the diagnostics. Other minor fabrics are characterised by the presence of quartzite or quartz and silver mica. Two fabrics stand out as potential imports: the volcanic and the sandy.²¹ Both are not compatible with the geology near the site and occur in low quantities (volcanic: 2.6 % and sandy: 2.4 %). The nearest sources of volcanic rocks are at the area of Plaka in East Attica and the Saronic Gulf (e.g. the islands of Salamis and Aegina or Methana). Further afield volcanic fabrics occur at Franchthi Cave in the Argolid.²² It is more difficult to suggest a provenance for the sandy fabric, most likely associated with quaternary deposits, which are widespread along the rivers and coasts of Attica.²³

Turning to the shape repertoire, seven shapes have been defined (Fig. 28.3). The bowl is the most common form, in five different types: straight-walled (1a), convex (1b), shoulder (1c), carinated (1d) and collared (1e). “Rolled” rims, a typical FN feature, are associated with straight and convex bowls. Large storage jars or pithoi (2) are present, and there are also smaller hole-mouth (3), necked (4) and collared (5) jars. Two types of pans have been identified: the pierced rim or “cheese pot” (6a) and the flat (6b). The scoop (7) is represented by a few sherds.

The most common surface treatment at Kontra Gliate is the application of a red-brown or grey-brown slip. Burnishing is less common; the burnished surfaces are usually fired to a shiny red or

red-brown colour. There are very few pattern-burnished sherds, with a decorative pattern consisting of units of three or four parallel lines of darker red-brown burnished lines and lighter (non-burnished) lines, which are juxtaposed at oblique angles.²⁴ The slipped, burnished and pattern-burnished surface treatments are frequently combined with the application of crusted red, orange and white colour.²⁵ Incisions, impressions and plastic or relief decorations occur on a few sherds.

Figure 28.2. The FN remains on the middle terrace of the Kontra Gliate acropolis (after Lauter 1996, supplement 2).

Figure 28.3. The FN shape repertoire of Kontra Gliate: a reconstruction of schematic types.

At Kontra Gliate, the potentially local fabrics (limestone-marble, calcite-tempered and micaceous quartz) are combined with a large variety of forms. It can therefore be suggested that they were used interchangeably for the production of the ceramic repertoire. This may indicate that the different local fabrics in use at Kontra Gliate represent several clay recipes, used by FN potters over a period of several centuries. This interpretation seems the most plausible, since the Kontra Gliate FN assemblage was most likely deposited over a substantial period of time and is therefore likely to represent the products of several potters.²⁶ It is reasonable to suggest that within such a long time period there would be several clay recipes used in pottery production. Even if the number of imports is low in the FN assemblage, some patterns can be identified. The imported shapes are two bowls (one convex-walled bowl in the sandy and one straight-walled bowl in the volcanic fabric), similar in form to the locally produced bowls. The volcanic fabric has a dark grey-brown slip. In contrast, the sherds of the sandy fabric are mostly red-brown slipped, and several bear traces of red or orange crusted colour. The rope-pattern motif occurs on two imports, one of the volcanic and one of the sandy fabric. To conclude, the imported pots do not seem to differ in shape or decoration from local products.

Thorikos Mine Gallery 3

The context of the second case study assemblage is unusual. At the site of Thorikos in East Attica, an ancient mine gallery, known as Mine 3, was excavated.²⁷ It was established that most of the deposits were disturbed by the continuous extraction of the ore during the prehistoric and later periods, the collapse of the entrance, later levelling and modern agricultural operations.²⁸ P. Spitaels's preliminary report of the ceramic assemblage discussed a

small quantity of EB II and EB III pottery, but also mentioned that “there is perhaps a certain amount of earlier material from the mine ... but it is not yet possible to assess its significance.”²⁹

The current study identified one Late Neolithic and fifty Final Neolithic sherds among the Mine 3 assemblage. These sherds come from disturbed deposits and cannot be directly associated with mining activities; they were most likely dumped into the area of the mine. Since there is no stratigraphy at Mine 3, there is not a clear link between the presence of LN–FN pottery and early mining. A scenario of exploitation of the mine during the Neolithic is not unlikely, but there is not enough evidence from the excavation to prove it with certainty. The pottery was dated through a typological study.

The earliest sherd from Mine 3 is from an incised scoop, of a potentially local fabric with quartzite inclusions. Its characteristic decoration of “incised bands with dots” most likely dates to the 5th millennium BC, with good parallels from the Kitsos Cave.³⁰ The predominant FN fabric is the calcite-tempered, followed by the micaceous other and the micaceous quartz fabrics.³¹ These fabrics are compatible with the local geology, but they could also have been produced elsewhere and imported to Thorikos.³² There are few identifiable forms: straight- and convex-walled bowls and a pithos handle. There are also slipped, red burnished, crusted, grooved and plastic sherds. Only two sherds can be highlighted as potential imports at Mine 3: one red and one brown burnished sherd of the micaceous gold fabric. It is possible, but not certain that this fabric is an Aeginetan import.³³

Contextualising the new data: comparisons with the secondary case studies

The new data on fabrics, forms and surface treatments from Kontra Gliate and Mine 3 can be compared to previously published pottery from the FN sites of the Athenian Agora, the Kitsos Cave, Thorikos square I53c5, Plakari, Kephala and Kolonna. These sites

were re-examined using the same methodology as in the primary case studies.

At most case study sites the ceramic fabrics are compatible with local geology. At the Athenian Agora, the major fabric contains sub-angular opaque white inclusions, most likely limestone, and there are few imports of the micaceous silver, volcanic and grog fabrics; some calcite-tempered pottery also occurs. No imports were identified in the pottery studied from Thorikos square I53c5, Plakari, Kephala and Kolonna, where there is strong evidence for the use of local clays. Only the Kitsos Cave has produced an unusually large quantity of a sandy volcanic fabric, most likely an import from Aegina or the area of Plaka, along with the potentially local micaceous silver and calcite-tempered fabrics.³⁴

There are also strong similarities in the shape repertoires of all the case studies (Fig. 28.4). It seems that all bowl types occur at all case studies. The only exception is the uncommon type of the collared bowl, occurring only at Kontra Gliate and Thorikos square I53c5. Similarly, the pithoid, collared and hole-mouth jars occur across the study region, whereas the necked jar is uncommon. The cheese pot is more widespread than the flat pan type, occurring at most sites.

A high degree of stylistic homogeneity is also observed in surface treatments/decorations. The same wares (red burnished, pattern burnished, crusted, incised and plastic) are being produced in the local fabrics in all the case studies. However, the different execution of pattern burnished decorations indicates that there were local variations in the production of this style. For example, the application of white paint on the non-burnished surface to emphasise the burnished lines was practised at the Agora and at Kolonna,³⁵ but no traces of it have been observed at Kitsos, Thorikos, Kephala or Plakari.³⁶ It is interesting that a pattern-burnished sherd with traces of white colour from the Agora is a possible import from Aegina, its fabric being volcanic; therefore,

Kolonna could have produced this variety of pattern burnished. There is also evidence for imported pattern burnished (either from Aegina or the area of Plaka) at the Kitsos Cave, where all the pattern burnished pottery is of the sandy volcanic fabric. In contrast, the data from Kontra Gliate, Thorikos, Plakari and Kephala indicate that the pattern burnished ware is probably locally produced at these sites. An interpretation of these patterns leads to a reconsideration of Mari’s suggestion that there were local specialised “workshops” that produced the pattern burnished ware in the Southern Aegean.³⁷ Even though there is exchange of pattern burnished pottery across the study region, the association of pattern burnished with local fabrics at most case study sites is compatible with non-specialised potters within the household.

								
Kontra Gliate	x	x	x	x	x	x	x	x
Thorikos	x	x	x			x		x
Kitsos	x	x			x	x		x
Plakari	x	x	x	x	x	x		
Kephala	x	x	x		x	x	x	x
Agora	x	x			x	x	x	x
Kolonna	x	x				x	x	x

Figure 28.4. Presence/absence of the most common FN shapes at the case studies.

Conclusions

The FN period in Attica is characterised by the local production of the bulk of the pottery; the use of multiple “local” fabrics is attested in Attica and Aegina, and is most likely associated with potters experimenting with several clay recipes. Ceramic exchange

is limited in this period, but there are very good stylistic connections with Central Euboea and Boeotia. For example, there are parallels for all the Attic forms from Tharrounia and the Sarakenos Cave.³⁸

There do not seem to be as many similarities with the Argolid, *i.e.* Final Neolithic Lerna and Franchthi.³⁹ Rolled rim bowls and pattern-burnished wares are reported, but the repertoire comprises mainly heavily burnished and painted bowls as well as large asymmetrical vessels (“drums”), which have not been recovered in Attica. Finally, Attica seems to be well connected with the Northern Cycladic islands, such as Kephala on Kea. There is very little FN pottery published from the Central and Southern Cyclades (and it remains unclear how far back into the FN the Grotta-Pelos styles originated), and therefore the links with the rest of the Cycladic islands are unclear.

We can conclude that similar pottery traditions existed among FN communities in Attica and the surrounding islands. This is highlighted by W. Phelps, who argues:

The sea that washed the shores of southern Euboea and southern Attica must have formed a small maritime cultural koine in the Final Neolithic (LNII) period, stretching from Eretria to Lavrion. The six or seven settlements lining Karystos bay, perched on small headlands, were all within sight and easy walking or rowing distance of each other. They faced southwards towards Thorikos on the mainland and Kephala on Kea. And they shared the same type of pottery.⁴⁰

It was exactly this similarity in pottery styles that led Renfrew to identify his “Attic-Kephala” culture, implying that these communities were interacting, most likely through maritime journeys. A thorough documentation of new and old material from Attica and its surrounding islands can provide the groundwork on which future research can be based, in order to further clarify the nature of FN social and cultural interactions.

Notes

- 1 The research for this paper was done in the scope of my Ph.D. thesis at University College London. Funding was provided by the Greek State Scholarships Foundation and the A.G. Leventis Foundation. I would also like to thank the Tricha Foundation of Education and European Culture and the Mediterranean Archaeological Trust for funding my post-doctoral project at Ghent University aiming to produce the final publication of the Neolithic and Early Bronze Age pottery from Mine 3 at Thorikos.
- 2 The contacts among FN Attica, Southern Euboea and Northern Kea were first highlighted by Renfrew 1972, 76.
- 3 The results of the Italian School excavations on the South Slope of the Athenian Acropolis are discussed by Levi 1930–1. The American School excavated Neolithic remains on the North Slope are reported by Hansen 1937, 539–42.
- 4 At Merenda, reported by Kakavoyanni *et al.* 2009a, at Nea Makri, published by Pantelidou-Gofa 1995, 133–7, and at Pallini, reported by Steinhauer 2001; Steinhauer 2005.
- 5 At Nea Makri, published by Pantelidou-Gofa 1995, 137–51, and at the Kitsos Cave, published by Lambert (ed.) 1981.
- 6 Pantelidou-Gofa 1997, 64.
- 7 Mari 2007, 75–6.
- 8 LN and FN remains have been excavated at the Ayia Triada Cave (Mavridis and Tankosić 2009, 2016). Karystian settlement patterns have been investigated by Cullen *et al.* 2013; Sackett *et al.* 1966; Sampson 1980; Sampson 1981; Tankosić and Chidiroglou 2010; Tankosić in this volume.
- 9 Two surface surveys on Northern Kea (Cherry *et al.* (eds.) 1991; Georgiou and Faraklas 1985) have identified several FN sites and findspots. The FN settlement of Kephala on Northern Kea has been published by Coleman (1977).
- 10 The metallurgical evidence from Attica is reported by Kakavoyanni *et al.* 2008.
- 11 Papadatos and Tomkins 2013, 358–61.
- 12 For Kontra Gliate see Lauter 1996, 11–8, for Plakari see Cullen *et al.* 2013, for Kephala see Coleman 1977.
- 13 Immerwahr 1971, 1–3; Immerwahr 1982.
- 14 Walter and Felten 1981, 86.

- 15 Spitaels 1982, 12.
- 16 Spitaels 1984.
- 17 Lauter 1996, 11–8.
- 18 The site was also inhabited during the Bronze Age.
- 19 The percentages in sherd counts are calculated from a total of 463 diagnostic FN sherds, however a lot of sherds were thrown away during the excavation and pottery processing by previous researchers.
- 20 Calcite-tempered pottery has a very distinctive appearance, with large voids or holes of rhomboid shape; these voids are sometimes filled with rhomboid-shaped white inclusions.
- 21 The volcanic fabric contains shiny black sub-angular inclusions (of “glassy” appearance) as well as gold mica. The sandy fabric contains rounded sand grains.
- 22 For the volcanic outcrops at Plaka in East Attica see the geological map by Papadeas 2003. A recent technological study by Whitbread and Mari (2014) discusses Late and Final Neolithic ceramic exchange within the Saronic Gulf. Vitelli (1999, 39) has identified an “Andesite ware” occurring mainly at Franchthi Ceramic Phase 4.
- 23 Papadeas 2003.
- 24 This is a common pattern on FN pattern-burnished pottery from Attica, Southern Euboea, Kea and Aegina, most likely imitating basketry (Keller 1982, 50).
- 25 The crusted colour is not preserved across a large enough area of the pot’s surface to establish whether it was applied in the form of specific patterns or designs, such as for example in the Peloponnese (Phelps 2004, 110), or Thessaly (Tsountas 1908, 244, tab. 12).
- 26 Lauter (1996, 13) notes that the FN strata were most likely fillings associated with more than one phases of the settlement.
- 27 Spitaels 1984.
- 28 Spitaels 1984, 161, 173.
- 29 Spitaels 1984, 170.
- 30 Lambert 1981, 290–1.
- 31 The micaceous other fabric is characterised by the co-occurrence of silver and gold mica. The micaceous quartz fabric contains quartz and/or quartzite and silver mica.
- 32 The identification of local fabric recipes at Thorikos is hindered

by the small size of the LN–FN sample, and more importantly from the similar geologies across East Attica, the Karystia and Kea. This has also been highlighted by de Paepe (1982, 79). These provenance issues could be clarified through an analytical study of a significant quantity of samples of FN pottery across this region, in order to define the technological characteristics of each assemblage.

33 Gauss and Kiriati (2011, 22) have shown that the source of biotite, the mineral associated with gold micaceous fabrics, is not necessarily Aegina, since biotite is common to a number of fabrics in the Aegean, and is a constituent mineral in a range of igneous and metamorphic rocks across the region.

34 The sandy volcanic fabric amounts to 61 % of the sample studied from the Kitsos Cave. For the provenance of the Kitsos Cave pottery see Courtois 1981.

35 Immerwahr 1971, 5; Walter and Felten 1981: 148.

36 Lambert 1981, 286; Spitaels 1982, 38; Coleman 1977: 11; Cullen *et al.* 2013.

37 Mari 1993, 147.

38 Sampson 1993a, 110, 113, 115–6; Sampson 2008b, 236–8.

39 Vitelli 2007, 117–25; Vitelli 1999, 64–95.

40 Phelps 2004, 121.

The Kastria/Pangali group and the beginning of the Chalcolithic in Southern Greece

Søren Dietz and Pernille Bangsgaard

Introduction

Between 1995 and 2001 the Danish Institute at Athens in collaboration with the 6th Ephorate of Prehistoric and Classical Antiquities in Patras carried out a series of field projects on the Aetolian coast, opposite the modern city of Patras.¹ The valley is fertile and well-watered by a year-round stream and the abundant water reservoirs of the limestone Mount Varassova, located immediately west of the valley. Surveys and excavations were carried out on and around the low hill of Ayia Triada where important remains from prehistoric, Archaic, late Classical, early Hellenistic and Byzantine times were attested. On the east side of the mountain itself, a broad terrace was fortified in late Classical times by walls made of huge sandstone blocks – the Strabo's Chalkis, more recently called Pangali.

Early Helladic I remains, dated by ¹⁴C to around 3000 BC, were excavated in the lower strata inside the Archaic terrace/fortification wall surrounding the Acropolis on the Ayia Triada mound.² In addition, faint traces of habitation from the mid-4th millennium BC were found both at Pangali and Ayia Triada. In the

southern part of the Pangali terrace, intensive surveys were conducted and a stratified deposit dating to the beginning of the Chalcolithic/Final Neolithic period was excavated in a small 2×2 sq m test trench. The present contribution attempts to characterise the social, economic and cultural dimensions of a small society within the framework of the early Chalcolithic development in Southern Greece.³



Figure 29.1. Ayia Triada with Varassova and Pangali in the background.

Pangali

The sloping plateau of Pangali is situated more than 100 m above sea level on the lower eastern foothills of Mount Varassova. A narrow, steep ravine to the south leads to the shore. From an agricultural point of view, the habitation is remote with a considerable distance to fertile fields in the flat valley further east.



Figure 29.2. The sloping plateau of Pangali.

1. Thin walled, open bowls with or without fine incised pattern below the rim, usually dark to black burnished (1–2);
2. Deep bowls with in-turned rim and incised decoration and dots (3);
3. Closed, hemispherical bowls with thin rim, dark/black burnished on interior and exterior, with or without incised decoration in the zone below the rim (4);
4. Bowls with incised decoration on the rim (5);
5. Black burnished bowls with S-profile and thin rim (6);
6. Straight-sided or rounded plain bowls with hourglass-shaped strap handles below the rim (6);
7. Black burnished globular bowls with incurved thin rim, small strap-handles below rim and incised decoration (7);
8. Closed shaped bowls or small jars, black burnished or plain with S-profile;
9. Plain jars with conical neck with or without S-profile (9);
10. Jars and pithoi with *pointillé* decoration and with straight lined cordons – in Kastria often with finger impressions.⁵

Very characteristic are the examples of fine incised decoration placed right below the rim, or less often, lower down on the body,⁶ and coarser jars with plastic bands or zones. The plastic bands or zones are decorated with impressed dots or fingernails or are just left smooth; the cordons are almost always straight and create geometric patterns. Of special importance is a surface find of a stone figurine of a type found for instance in the Corycian cave in Phocis.⁷

Tools in radiolarite, flint, and obsidian (Fig. 29.3) are abundant, particularly at Pangali, where 50% of the tools are produced by pressure flaking. There are a few cores, blades, and micro-blades, many scrapers, knives, and sickle fragments. The technique of the chipped stone industry is practically the same on both sites. At Kastria there are 91 chipped stone tools, of which 54% are made using obsidian and the rest are of flint. At Pangali, where a smaller area was excavated, 1300 tools in radiolarite, flint

and obsidian were found, of which 278 pieces (or 21%) are made of obsidian. Such a substantial difference in the amount of Melian obsidian can be explained, at least in part, by the location of Pangali near the sea. Another characteristic difference is that at Kastria only one point (made of flint) was found, while at Pangali there are 38 tanged and barbed points – and one hollow base.⁸ Final Neolithic flaked stone technology, in contrast to the Late Neolithic, is characterised by the introduction of long blades produced by the pressure technique with retouch on the long sides; pointed, and sometimes barbed arrowheads with parallel retouch; and an increasing quantity of scrapers.⁹ These characteristics correspond to the flake stone industry at Pangali¹⁰ – and thus confirm a Chalcolithic/Final Neolithic dating of the Pangali assemblage.¹¹

Faunal evidence (Fig. 29.4a)

Excavations at Pangali unearthed a collection of animal bones, almost 1400 fragments in total, which provide useful clues to the socio-economic organization of the group. Sheep (*Ovis aries*) and goat (*Capra hircus*) were by far the community's most frequently herded animal, as they account for 67% of the identified fragments. Additionally, there were three goats to every two sheep. The two other domesticates, pig (*Sus domesticus*) and cattle (*Bos taurus*), only represent 9% and under 3% of the assemblage, respectively. Instead, wild animals (mammals, birds, and fish) account for over 20% of the identified fragments. The group consists mainly of roe deer (*Capreolus capreolus*), but also hare (*Lepus europaeus*), wild pig (*Sus scopa*), wild cat (*Felis silvestris*), fox (*Vulpes vulpes*) and birds and fish have been identified. The last two could only partially be identified to family, but the birds include pigeon (*Columbidae* sp.) and crow (*Corvidae* sp.).¹² Such a high percentage of wild fauna is unusual for a Late/Final Neolithic site, where the domesticated species are clearly in majority.¹³ Marine molluscs were also collected at Pangali, including species

found in rocky coastal habitats, and in particular limpets. In total 64 shells were recovered during excavation, thus representing a small supplement to the diet.¹⁴

Due to the limited size of the faunal collection, time-of-death information is only available from fusion of long bones and not from the more accurate dental profiling.¹⁵ The data suggest that pigs were killed before or around the age of 1 year, whereas sheep and goat were slaughtered mainly around 1 year, with a few animals reaching an age of 3 years or more.¹⁶ The scanty evidence therefore suggests that pig as well as sheep and goat were bred primarily for meat.

The zooarchaeological data testifies to a community with a broadly based economy. Its inhabitants took full advantage of their local environment, combining an economy based on domesticated animals with collecting, hunting and fishing in the valley, in the mountainous hinterland, and in the nearby sea. The faunal collection cannot definitively establish the seasonality of the habitation at Pangali, nor establish or rule out the presence of a year-round occupation there. However, the presence of both foetal and pullus bones from pig as well as sheep and goat suggest that the site was settled at a minimum during the first half of the year, January through June.¹⁷

The Kastria faunal assemblage has been analysed by K. Trantalidou and a few differences are worth mentioning (Fig. 29.4b).¹⁸ Firstly, although a similarly high percentage of bones belong to wild animals at Kastria as at Pangali, a proportion of those are from dormice - and at present there is no evidence to indicate that these were actually eaten.¹⁹ Secondly, the *cervid* bones at Kastria are from the larger red deer and not roe deer. Additionally, the distribution of sheep and goat is reversed, as sheep are found twice as often as goat. Such a difference may relate to local traditions or to variations in types and quality of available grazing.²⁰

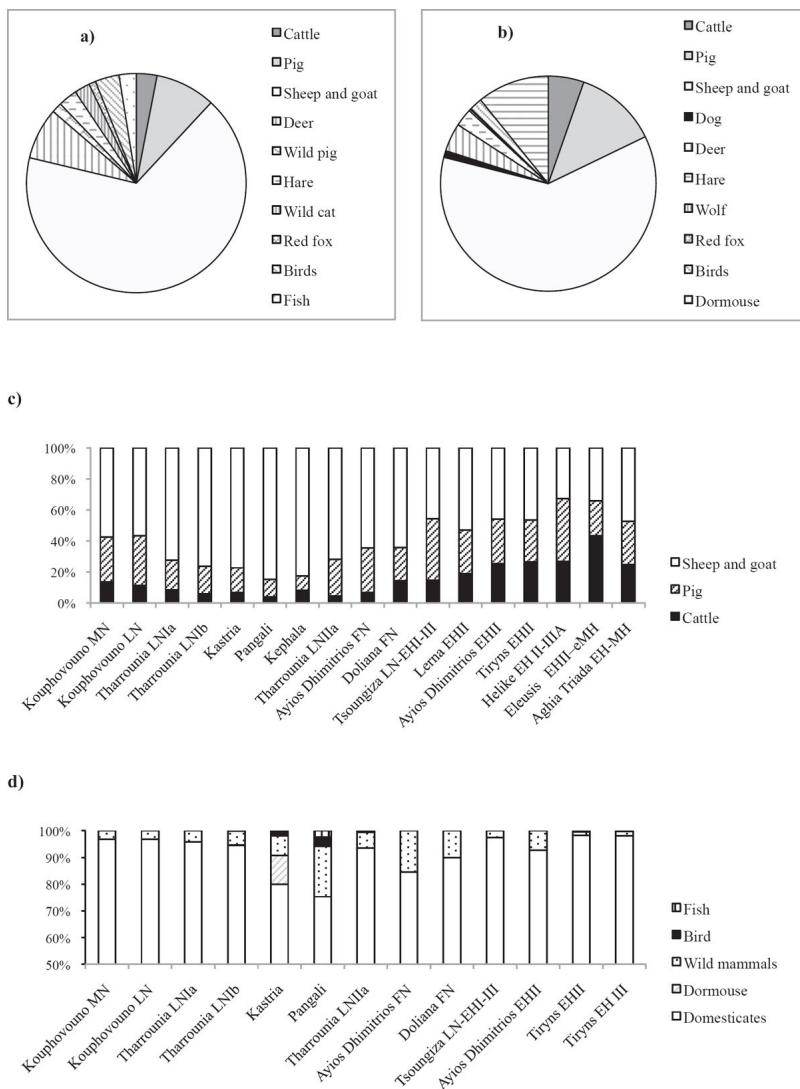


Figure 29.4. The faunal evidence from Pangali (a), Kastria (b), the comparative distribution of domesticates at Neolithic and Bronze Age sites (c), and the distribution of wild fauna at Neolithic and Early Helladic sites (d).

In order to contextualise the Pangali-Kastria datasets within a regional scope, a number of sites with available faunal data are examined (Fig. 29.4c–d). They cover the eastern and southern

mainland Greece, the Peloponnese along with two nearby islands, and include the periods immediately before and after the period 4500–4200 BC. Two points should be made. First, the importance of sheep and goat in the Neolithic has been pointed out by several scholars;²¹ however, it would appear that the Kastria/Pangali group displays an even more pronounced focus on these two species. Second, although domesticates are the main meat supplier from the beginning of the Neolithic onwards, the evidence from Pangali and to some extent also from Kastria indicates that the group to a larger degree than elsewhere chose to utilise local wild animals as an extra food source. Together these two trends could point to a subsistence strategy of diversification. We might suggest that the use of local wild resources and an increased focus on the fodder- and water-tolerant sheep and goat would have given the community of Pangali and Kastria more options and potentially more food security than offered by previously established economic strategies.

The “Prosymna incised” ware and the Kastria/Pangali group

The fine incised decoration on open and closed bowls was considered to be a small but characteristic part of the Attica-Kephala ensemble “at the beginning of Period IV”²² and was identified by W. Phelps in 1975 under the name “Prosymna incised.”²³ Phelps noted that “the only certain shapes are simple convex bowls and that ... it appears to be a local North-East Peloponnesian ware.” According to Phelps the Prosymna incised was also found at Corinth and Klenia.²⁴ The ware group has been identified by K. Zachos at Ayios Demetrios in Elis – demonstrating that it was not restricted to the North-Eastern Peloponnese,²⁵ but it is characteristic that Prosymna incised, in the mentioned contexts is found in small quantities. In the West Yerogalaro deposit at Prosymna only 12 sherds were found and at Ayios Demetrios, only five.²⁶ The Prosymna incised was, for good

reasons, considered to be a ceramic class of pottery co-existing and contemporary with more dominating and characteristic ware groups, such as pattern-burnished and crusted ware.

In contrast to these appearances, the Prosymna incised ware in the Kastria/Pangali contexts has a dominant position within a different type of assemblage, which does not include pattern-burnish, crusted ware, *etc.* In the Limnes Cave, Kastria, 136 or 27% of the decorated sherds have decoration of fine incised lines.²⁷ In Pangali, 192 sherds with fine incised decoration makes up 7.7% of the entire assemblage.²⁸ As mentioned above, incised wares are also found in the Tharrounia Cave in Euboea, where Sampson's LN Ib phase was first defined, but the Tharrounia incised is another local development without clear connection to the Kastria/Pangali incised ware or, to cite Sampson and Katsarou on Kastria: "Given that in Central Greece this incised variety is absent, it seems to be a local idiosyncrasy in the pottery of the northern Peloponnese at the end of the LN I and the beginning of LN II."²⁹

The fine incised decoration of the type found at Kastria and Pangali seems closely related to Early Chalcolithic pottery groups in SE Albania. Fine incisions in "broad bands, triangles and rhombs" filled with either dots or parallel lines are drawn in the wet or slightly dried clay (always before firing) like at Kastria and Pangali (Fig. 29.3).³⁰ The fine incised lines decorate bowls and are usually found under the rim.³¹ The decoration is characteristic of the Early Chalcolithic pottery horizon in South-East Albania represented at Burimas II, Kamnik II, Maliq Ib/IIa, *etc.*, corresponding to early Rachmani in Thessaly and the late 5th millennium BC in Southern Greece.³²

The beginning of the Chalcolithic in Southern Greece³³

The Final Neolithic period is generally defined by the disappearance of painted wares characteristic of the Late

Neolithic. Based on the pottery development, W. Phelps divided his FN period in two phases. The early phase contains the so-called Prosymna or Aegina type of pattern-burnished ware, the Prosymna incised, white and red crusted ware, “and features and shapes that can be linked to the Agora-Kephala groups.”³⁴ The late phase comprises the rolled-rim bowls of Kum Tepe Ib type, French’s North Slope group and “the typologically latest pottery from Alepotrypa.”³⁵ K. Zachos’s excavations at Ayios Demetrios in Triphylia/Elis in Western Greece make it clear that both pattern-burnished of the Attica-Kephala type (31 “small sherds” from Ayios Demetrios) and crusted ware (18 sherds from Ayios Demetrios) were found outside the suggested core-area, the Attic-Saronic Gulf, if not in large quantities.³⁶ Recently E. Alram-Stern has dealt with the topic in a series of articles, updating the evidence for the Final Neolithic/Chalcolithic in Southern Greece.³⁷

Franchthi Cave is the only site in the Peloponnese which contains stratified deposits from both LN and FN, even if the material is limited and the upper layers are somewhat mixed.³⁸ The beginning of the Late Neolithic period (FCP3) is defined by a “black-burnished” phase – the pottery closely related to the Eastern Thessalian Tsangli-Larissa phase, while the later LN phase (FCP4) was *inter alia* characterised by pedestalled basins, rhyta and “very much painted pottery.”³⁹ The Final Neolithic group FCP5.1 contained plain burnished, red slipped, white painted, red-on-white painted, manganese oxide painted, polychrome painted and crusted decoration, incised and impressed decoration and pattern-burnished.⁴⁰ In phase FCP5.2 heavy burnishing appears as a newcomer while pattern-burnishing continues.

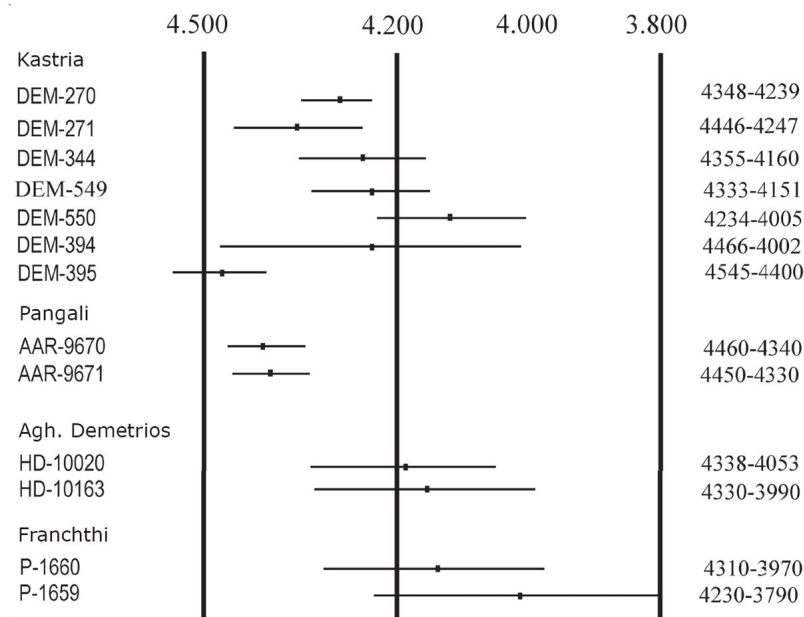


Figure 29.5. ^{14}C dates of Pangali, Kastri and related sites.

Chronology

The presence of a small amount of Prosymna incised ware in cultural groups with pattern-burnished/crusted wares indicates a chronological overlap between the two horizons, but there is also evidence for a direct chronological succession between the Kastria/Pangali group and the “Southern Aegean” Attica-Kephala complex with pattern-burnishing. E. Alram-Stern (talking about Franchthi 5.1) says: “...die nach den C vierzehn Daten zwischen 4300 und 3800 datieren und direkt an Kastria anschliessen.”⁴¹ Pattern-burnished ware of the Attica-Kephala type was found relatively abundantly in the Tharrounia cave in Euboea.⁴² This ware group, stratigraphically said to belong to phase 3, is considered to define the beginning of LN II.⁴³ A. Sampson suggests that the latest phase of his LN Ib – the end of Tharrounia 2 – lasts from 4540 ± 180 BC to approximately 4200 BC and the first phase of the LNIIa/early FN, “the pattern-burnished horizon”, which is the beginning of

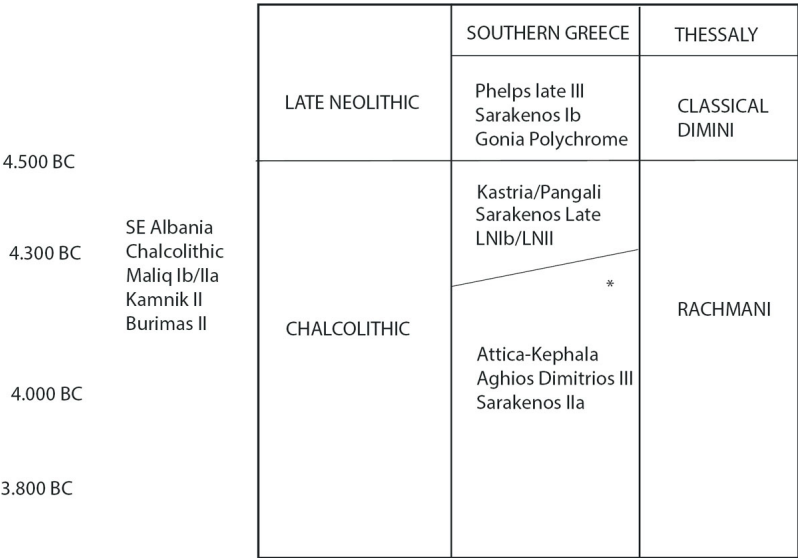
Tharrounia 3, lasts from 4200 to approximately 3600 BC.⁴⁴ In the Limnes cave of Kastria, pattern-burnished ware is not found in phase III.⁴⁵ E. Alram-Stern says: “*In die Zeit vom Begin des Chalkolithikums scheinen die Funde der Phase III der Seenhöhle bei Kastria in der Nähe von Kalavrita zu hören*” – even if she accepts that the presence of pattern-burnish defines the beginning of the Chalcolithic.⁴⁶

¹⁴C dates are available from both Kastria and Pangali. For comparison, we have included dates from the Attica/Kephala group or Final Neolithic assemblages from Franchthi and Ayios Demetrios (Fig. 29.5).

The ¹⁴C dates suggests that the Kastria/Pangali group is older than the phase defined by the pattern-burnished pottery. According to E. Alram-Stern, the pattern-burnished ware as seen in Franchthi 5.1, Ayios Demetrios I and in the Tharrounia/Skoteini cave attest to a chronological span from 4300 to 3900 BC.⁴⁷ Based on the ¹⁴C dates we suggest that the Kastria/Pangali group should be dated to around 4500 to 4300/4200 BC. We also suggest that the chronological phase Kastria/Pangali should be termed early Chalcolithic (see below).

Phelps states that the only sites in the Peloponnese where LN polychrome pottery is found are Prosymna (East Yerogalaro) and Gonia: “the floruit of Gonia was relatively short and came late in the period III ...” and “polychrome ware, then, should come at the end of period III, before the (Period IV) crusted and pattern-burnished wares ...”⁴⁸ In the Sarakenos Cave on the eastern side of the Kopais, the excavator distinguishes a LN Ib late phase with polychrome painted wares of Gonia type, succeeded by a LN Ib–II phase: “these wares appear in LN Ib but their production continues into the early Neolithic II”.⁴⁹ Among other wares and shapes it is characterized by plastic (e.g. rope patterns), incised and grooved decorated pottery – LN II with “rolled rim” bowls, last generation of “scoops”, “elephant-head type handles” – and pattern-burnished – which “[...] dates from the beginning of Late Neolithic II.”⁵⁰ The

considerable amount of Gonia polychrome ware in Sarakenos disproves Phelps’s opinion that this ware was a local North-East Peloponnesian production around Gonia and Klenia.⁵¹



* The presence of fine incised ware in Aghios Dimitrios and Prosymna West Yerogalaro indicates a chronological overlap.

Figure 29.6. The proposed chronology for the Late Neolithic and Chalcolithic Periods.

The chronological development around the transition LN/FN is shown on [Fig. 29.6](#).

Summary and discussion

The transition to the Chalcolithic or Final Neolithic period in Southern Greece is said to be characterised by a considerable increase in the number of sites and an intensified use and new exploration of the regional landscape. Caves are used more often than in the earlier phases of the Neolithic.⁵²

The dramatic changes in settlement pattern, lifestyle, social and economic structures and material culture have been explained by population pressure that forced people to occupy secondary

lands, and climate change – including rising sea levels.⁵³ Other scholars have underlined that changes in the system of plant agriculture from spring-fed to rain-fed were important determinants in the changes of the Later Neolithic.⁵⁴ Even if the evidence is flimsy, it is reasonable that there existed a kind of symbiosis between the pastoralists in the highlands and mountain zones and farmsteads in the arable plains - the situation advocates for a kind of “economic pluralism”.⁵⁵ In this model, a significant feature of the Final Neolithic is the developing exchange networks involving metals, obsidian, polished stone axes, stone vessels, millstones and ceramics.⁵⁶ These networks should be considered a mosaic of related phenomena within a broad chronological span of the 5th and 4th millennium, not chronologically linked with the distribution of the pattern-burnished ware groups.⁵⁷ Copper tools and ornaments are found at both Ayios Demetrios and Kephala, where metal production probably took place, but copper metallurgy was developed in the Aegean before 4300 BC and is not only related to the Attica-Kephala horizon.⁵⁸ Stone vessels are important indicators of trade and communication from the early 5th millennium until the 4th millennium in Western Anatolia, the Balkans and the Aegean in general, but are not specifically related to the 4300 BC horizon.⁵⁹

Of the 50 FN sites listed by K. Zachos, only 12 had pattern-burnished sherds and 11 contained sherds with crusted decoration.⁶⁰ Additionally, in most surveys the definition of Final Neolithic is not based on the appearance of pattern-burnished. Founded mainly on the distribution of pattern-burnished ware, crusted ware and the “Prosymna incised” in addition to the common ware groups like the “red monochrome”, Zachos concluded that it is “not unreasonable” to speak of a ceramic *koine* throughout the Peloponnese, Southern Greece and as far north as Euboea – or the “Southern Aegean Chalcolithic” in A. Douzougli’s terminology.⁶¹ E. Alram-Stern likewise subscribes to the idea that the early Chalcolithic creates a *more or less* contemporary

development in the Aegean and Central/Southern Greece.⁶²

The dating of the beginning of the Final Neolithic to 4500 BC is conventional and primarily based on the transition from Dimini to Rachmani in Thessaly.⁶³ We would suggest that the pattern-burnished ware should not define the beginning of the Chalcolithic, but rather be considered a phenomenon which appeared 200–300 years later – around 4300/4200 BC.⁶⁴ From around 4500 BC, the beginning of the Southern Aegean Chalcolithic, a number of smaller pastoral groups were adjusting to a set of new environmental and living conditions in the highlands and mountain zones with their own social and economic reality and specific material culture. These groups probably created more or less close ties to agrarian societies in nearby arable lowland zones.

This contribution suggests that inhabitants living in the Limnes Cave near Kastria and the site of Pangali on the Aetolian coast opposite Patras were closely related social groups with similar economic structure, style of life, social behaviour and cultural characteristics. From an agricultural point of view, both places are situated in marginal zones – or at least in zones where new agricultural technologies were needed. The Limnes Cave is situated inland, 800 metres above sea level in a mountainous environment in the northern Peloponnese, while the inhabitants of Pangali lived on a mountain plateau on the east side of Mount Varassova, less than 100 meters above sea level, but close to the sea. The cave had been very sporadically visited by groups of people during the Early Neolithic and early Late Neolithic before the main occupation in the early Chalcolithic, whereas the settlement of Pangali dating to the same early Chalcolithic represents the first human settlement on the mountain terrace.

Obsidian was imported in abundance, probably second-hand, but still testifying to coastal navigation in the Corinthian Gulf and in the Aegean during the second half of the 5th millennium. The small hemispherical bowls and other pottery shapes with fine

incised decoration indicate contacts with early Chalcolithic culture groups in South-East Albania, indicating that connections extended to the north towards the Balkans as well as east towards the Aegean during the same period. At Pangali a badly preserved stone head of an idol corresponds to idols of the Chalcolithic period, especially with idols found in the Corycian cave in a mountain saddle between Phocis and Boeotia.⁶⁵

The small societies of the Kastria/Pangali group were pastoralists. Sheep and goats clearly supplied the majority of the nutrition – in Pangali three goats to every two sheep, in Kastria the distribution was reversed. The difference probably depended on environmental differences, as the Limnes Cave is closer to agricultural land than Pangali, where there is no local agrarian land to speak of. The unusually large amount of wild animals is characteristic and testifies to the importance of hunting, supplemented by fishing and collecting marine molluscs. The subsistence strategy of diversification gave the small societies more options and potentially more food security than previously established economic strategies. Scholars have associated the characteristic incised pottery with stock breeding and transhumance, but the zooarchaeological data do not attest to long-distance mobility or specialised pastoralism based on secondary products.

Notes

1 Dietz and Moschos 2006.

2 Dietz and Kolonas (eds) 2016.

3 Mavridis and Sørensen 2006. Dry sieving was used.

4 The examples illustrated in [Figure 29.3](#) are all from Pangali (see Mavridis and Sørensen 2006).

5 This ware group is much more abundant in Kastria than in Pangali.

6 Mavridis 2006, pl. 28.

7 Moschos and Mavridis 2012; Touchais et al. 1981.

8 Sørensen 2006. For Kastria see Karabatsoli's contribution in

Sampson 1997.

9 Perlès 2004, 129 for Franchthi.

10 Sørensen 2006, 154–5. Except for the denticulate and the characteristic triangular foliates, present in Franchthi.

11 Pressure blade technology has been recorded at several places in the area between the Aegean and the Marmara in both Neolithic and Chalcolithic (Gatsov and Nedelcheva this volume).

12 Bangsgaard 2006.

13 See e.g. Halstead 2011; Rivals *et al.* 2011.

14 Strand Petersen 2006.

15 See e.g. Greenfield and Arnold 2008; Legge 2013.

16 Bangsgaard 2006.

17 Bangsgaard 2006; seasons based on Halstead 2005.

18 Trantalidou 1997.

19 Trantalidou pers. comm.

20 Trantalidou 1997.

21 See e.g. Cherry 1988; Halstead and Isaakidou 2011.

22 Douzougli 1996; Phelps 1975, 106; Zachos 1987a; Zachos 2008.

23 Blegen 1937; Phelps 1975, 300 ff. and fig. 94.

24 Phelps 1975, 300 ff.

25 Zachos 1987a; Zachos 2008.

26 Zachos 2008, 20.

27 Katsarou's contribution in Sampson 1997, 236.

28 Mavridis 2006.

29 Alram-Stern 2007b, 4; Sampson 1997, 542.

30 Korkuti 1995, 213; Mavridis 2006, 125.

31 Korkuti 1995, 100, Taf. LXXVI, LXXX.

32 Korkuti 1995, 215 (with a discussion on the terminology and various views on the dating of Maliq Ib/IIa). See also Touchais *et al.* this volume.

33 We prefer the term Chalcolithic to Final Neolithic or Late Neolithic II in order to emphasize the radical socio-economic changes which define the transition and to adjust the chronological systems to the terminologies in Thessaly, the Balkans and the Aegean area in general. For the term Chalcolithic see for instance Alram-Stern 2007b; Alram-Stern forthcoming b; Coleman 2011, 30, note 1; Douzougli 1992; Maran 1998a; Maran 2000).

34 For another term of the same phenomenon, see Hauptmann

1981, 137ff, “Ägina-Kefala-Phase”. For the term “Südwest-Ägäisches Chalkolithikum” see Douzougli 1987 and Weisshaar 1994, 686 (see below). In this article, we use C. Renfrew’s term “Attic-Kephala” (Renfrew 1972) out of convention.

35 Phelps 2004, 104. The term Final Neolithic (FN) was first used by W. Phelps and C. Renfrew in the 1970s in order to adjust the chronology of the later Neolithic period, hitherto included under the term Late Neolithic, to the new chronological realities created by the so-called “radiocarbon-revolution” or rather the “second radiocarbon revolution”, (Phelps 1975; Renfrew 1972; Renfrew this volume).

36 Phelps 2004, 107; Zachos 2008.

37 Alram-Stern 2007b; Alram-Stern forthcoming a; Alram-Stern forthcoming b.

38 Vitelli 1999, 15ff.

39 Vitelli 1999, 97.

40 Less than 15 sherds.

41 Alram-Stern 2007b, 3.

42 Mari 1993, 136 ff.

43 Sampson’s terminology. Mari 1993, 147, 286.

44 3675–3528 BC. Sampson 1993a, 286–7.

45 Sampson 1997, 324. “The absence of typical LNII features, such as the pattern-burnished ware ... cannot be justified by the isolation of the area” (Sampson 1997, 539). However, the authors evidently do not draw any chronological conclusions from this statement.

46 Alram-Stern 2007b, 2.

47 Alram-Stern 2007b, 3 “... *der Höhepunkt seiner Beliebtheit* ...”. Based on available ¹⁴C dates, Vitelli suggests that the hiatus between FCP4 and FCP5 makes up some 500 to 850 years and that “The ¹⁴C dates ... suggest that FCP5 activity at Franchthi took place over the course of several hundred years, roughly in the middle of the long 1500 years span of the Final Neolithic in Greece” (Vitelli 1999, 88–9). The same chronological time-span is suggested for Final Neolithic Lerna (Vitelli 2007, 133).

48 Phelps 2004, 101–3.

49 Sampson 2008b, 214.

50 Sampson 2008b, 283; “rolled-rim” bowls are usually considered to be late in the FN development.

51 Phelps 2004, 101.

52 For instance Johnson 1996a.

53 This explanatory model has been preferred by leading scholars in the Balkans during the last decades and is probably an important additional factor. See Aslanis this volume. Weiberg and Finné (2013) reject the effects of “environmental stress” and climate change as reasons but emphasize that local conditions could be decisive.

54 Cavanagh 1999, 53; Jameson *et al.* 1994; Runnels and van Andel 1987.

55 Cavanagh 1999, 56.

56 Cavanagh 1999, 57.

57 For the distribution of pattern-burnished and crusted wares see Renfrew 1972 and recently Zachos 2008, maps 3–4.

58 Zachos 2010, also for Neolithic gold in the Aegean. For silver see Maran 2000. Also, Coleman this volume.

59 Takaoglu and Bamyaci this volume.

60 Zachos 2008, 17 and maps 3–4. To the FN sites should be added Tsoungiza, Berbati, sites registered by the Southern Argolid survey project and the Nemea survey project (NVAP). See also Pullen 2011, 20, note 13. Alram-Stern forthcoming a lists at least twice the number of FN sites in the Peloponnese, cit. Fig. 29.7 “but their chronological range is often unsecure”. Alram’s list is mainly based on Sampson 1997, 352–6.

61 Douzougli 1992. See also Weisshaar 1994; Zachos 2008, 46.

62 Alram-Stern 2007b, 3, 5.

63 For instance, Perlès this volume and Perlès 1999, 24; Demoule and Perlès 1993. Perlès emphasises the changing socio-economic situation at the transition to the Final Neolithic (Démoule and Perlès 1993, phase 5) and the dating of the Dimini/Rachmani transition in Central Greece. Also Coleman 2011, note 11. Coleman prefers 4500 BC for the beginning of the Chalcolithic in Southern Greece – rather than 4300 BC as suggested by Alram-Stern – mainly based on the transition in Thessaly and the north, Johnson 1999; Papathanassopoulos (ed.) 1996, 28–9.

64 The identification of the beginning of the Chalcolithic thus depends on less spectacular pottery elements (than pattern-burnish and crusted ware), such as the characteristic plastic decorations on

coarse ware storage jars and fine incised pottery – but first of all on ^{14}C dating. For a critique of and comments on the use of pattern-burnished ware as a chronological indicator for the beginning of the FN, see Cavanagh 1999, 34 and Treuil *et al.* 1989, 127.

65 Touchais *et al.* 1981.

Tracing social changes in the Late Neolithic/ Final Neolithic transition at Drakaina Cave, Kephalonia, Western Greece

Georgia Stratouli and Odysseas Metaxas

The cave and its stratigraphy

Drakaina Cave is located close to the south-east coast of Kephalonia Island, within the area of the village of Poros (Fig. 30.1), on the steep cliffs of the Vochynas Gorge at an altitude of ca. 70 m (Fig. 30.2). In its present form, Drakaina is an open shallow cavity with a sheltered area measuring ca. 90 m² (Fig. 30.3). Excavations at Drakaina Cave were carried out between 1992–96, 1999–2002 and 2004–5 by the Ephorate of Palaeoanthropology-Speleology and extended over an area of ca. 48 sq m.¹



Figure 30.1. Satellite image of the area of Kefhalonia and view of the Poros village with the Vochynas gorge and the location of Drakaina Cave on its cliffs (photo taken from the east).

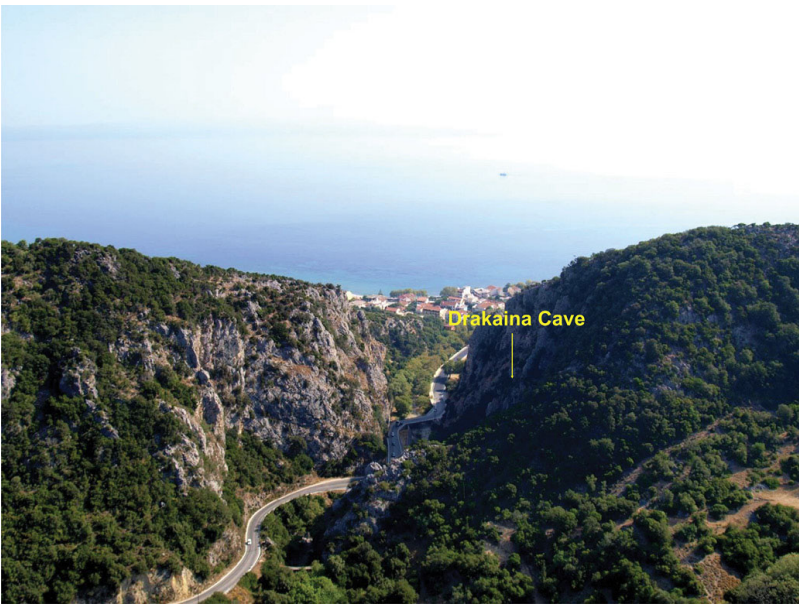


Figure 30.2. View of the Vochynas gorge with the location of Drakaina Cave (photo taken from the west).

The uppermost part of the Drakaina Cave sequence comprises archaeological layers (*ca.* 0.20–0.40 m thick) that date from the late 7th to the early 2nd century BC (Fig. 30.4), when the site was a cult cave dedicated to the Nymphs. Underlying these layers, there was an accumulation of natural deposits (*ca.* 0.10–0.15 m in thickness) devoid of cultural remains. Immediately below there was a unit of mixed Early Bronze Age (EH I–II) and Final Neolithic (FN) finds. The Late Neolithic (LN)/Final Neolithic cultural layers at Drakaina constituted the bulk of the archaeological sequence (Fig. 30.4). They consist of prehistoric stratified deposits representing a long and complex sequence, dated to two main phases: a transitional Middle Neolithic/Late Neolithic and Late Neolithic I phase (*ca.* 5600–4900/4800 cal BC) and a Late Neolithic II phase (*ca.* 4900/4800–3700 cal BC), including a large part of the Final Neolithic (*ca.* 4500–3700 cal BC). These two phases will be termed Drakaina I and Drakaina II, respectively, in this paper.

The archaeological material from the cave's Neolithic deposits

Within the Neolithic sequence of layers, several hard, whitish-coloured units were uncovered, dated mostly to Drakaina II. Through micromorphological analysis they were identified as lime-plastered floors.² These surfaces, which were constructed at intervals, show a remarkable consistency in material and technique over a time span of almost a millennium. Furthermore, the occupational deposits of the cave display *in situ* preserved remains of hearths, as well as material from several raked-out fire installations mixed with burnt food remains.

Additionally, the Neolithic deposits of the cave contained a plethora of pottery: this includes a variety of wares, such as black burnished, Urfirnis, and dark-on-light, along with zoomorphic four-legged rhyta, all characteristic of the Drakaina I occupation phase. Pithoid vessels with plastic decoration as well as

polychrome and crusted wares are characteristic of the Drakaina II phase.

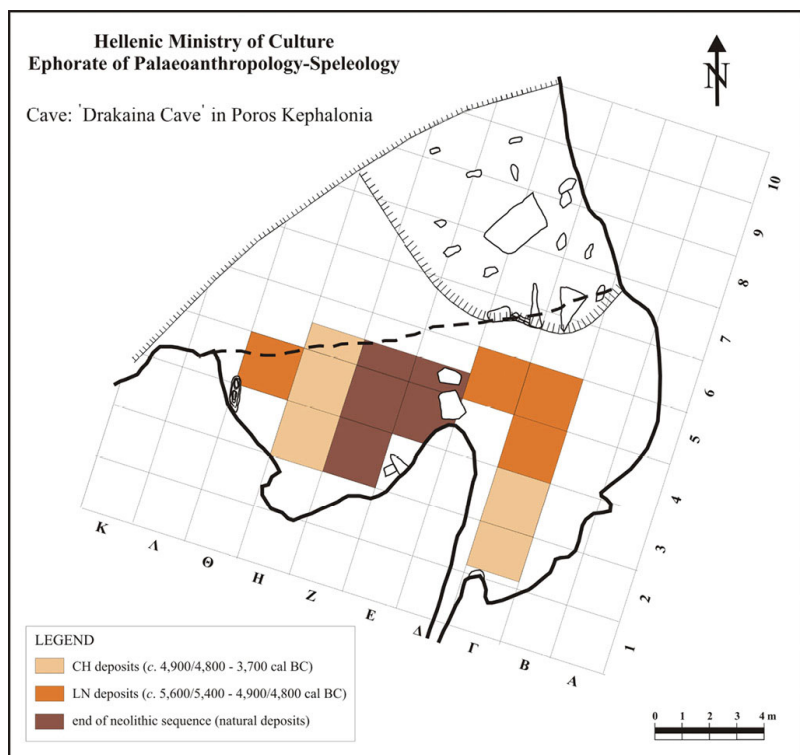


Figure 30.3. Plan of Drakaina Cave (after the topographer Theodoros G. Chatzitheodorou) with the excavation grid and the neolithic deposits revealed to date in each trench.

Other categories of material were represented in abundance as well, such as ca. 550 chipped stone formal tools and more than 10,500 knapping by-products. A large assemblage of ca. 440 ground stone implements was used for various tasks, like food preparation, pigment processing and chert knapping.

Imported artefacts (or their raw materials) include: gabbro and dolerite celts, most probably from the Grevena area of the Pindos Mountains (Greek Mainland); a large number of talc beads, possibly from the Pindos Mountains as well; a fragment of a

zoomorphic vessel made of marble originating from the island of Naxos in the Cyclades; a small number of obsidian artefacts from the island of Melos, also in the Cyclades; and two gypsum beads from the neighbouring island of Zakynthos. A few of the analysed pottery samples are most likely imported as well. In contrast, all chert artefacts subjected to petrographic and Rare Earth Element (REE) analyses seem to be from local sources near the Poros area.³

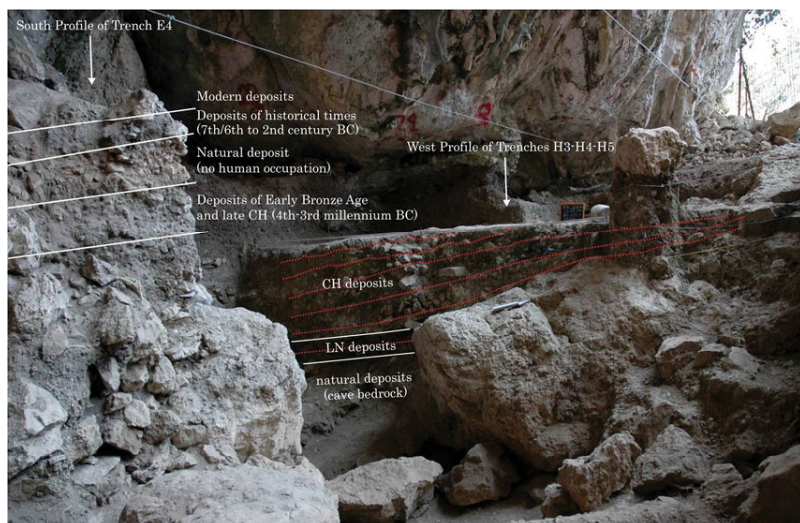


Figure 30.4. View of the western part of Drakaina Cave with the stratigraphic sequence from the natural bedrock to modern times, projected on the west profile of trenches H3 to H5 and on the south profile of trench E4. The red dotted lines indicate the approximate level of preserved lime plaster floors occurring within the neolithic sequence.

A considerable part of the archaeological material was almost certainly used during gatherings, periodically hosted in the Drakaina Cave. It is notable that cereals and legumes reached the cave already processed and ready for consumption,⁴ while the bones of domesticates are dominated by selected body parts providing high nutritional yield.⁵ We will argue that these gatherings were related to the negotiation and reproduction of local social norms. Despite elements of continuity between chrono-

cultural phases, we will focus here on some indications of change between the two main Neolithic phases of the Drakaina Cave that can furnish some evidence for the variable nature of those gatherings during the course of the Neolithic period.

The centrality and interconnection of projectile points and red pigment

A salient characteristic of the chipped stone assemblage is the large number of projectile points (Fig. 30.5); their number reached at least 213 specimens, after the totality of the chipped stone material was analysed. It is often asserted that projectile points can be imbued with symbolic value.⁶ A variety of indications points to the assumption that projectiles held a symbolic role in the gatherings that took place at Drakaina Cave and had a wider significance within the local socio-cultural context.

The LN I assemblage consists of asymmetrical points and transverse arrowheads. The majority of asymmetrical points are shouldered. The term “asymmetrical” was preferred since longitudinal axis asymmetry is the sole common denominator in this morphological category. Transverse arrowheads are fewer and disappear after early LN I. It is notable that the distinction between asymmetrical points and transverse arrowheads is arbitrary, since they form a morphological continuum. Drakaina II projectiles include tanged and asymmetrical points, as well as two triangular points.

At other sites across the Aegean tanged points are generally used after the MN/LN transition. It might be argued that the proliferation of obsidian in Southern Greece after the start of LN is related to the spread of tanged points, which usually exhibit more extensive bifacial flaking. Since Kephallonia remained effectively on the margin of the obsidian trade area, a rather wasteful utilisation of local raw materials might account for the persistence of a given lithic morpho-technological category. Technological “style” would have a passive character, as a case of “isochrestic

variation.”⁷ However, the introduction of tanged points at Drakaina II is not accompanied by any general raw material procurement or technological change in the chipped stone industry. For this reason, another explanation has to be formulated for both the persistence of asymmetrical points during LN I–II and the absence of tanged points from LN I layers.



Figure 30.5. Various groups/types of chert projectile points from the LN and CH (including FN) layers of Drakaina Cave.

The Drakaina Cave chipped stone debitage is characterised by the overwhelming preponderance of a simple, occasionally bipolar flake reduction sequence. A blade reduction technology was only marginally practiced at the site, since blade(let) cores and crested blades are very rare. That is unlike the chipped stone assemblage from Choirospilia on the neighbouring island of Lefkas, which includes ample evidence of *in situ* blade production.⁸ At the early FN site of Pangali in Aetolia, across the sea on the mainland, a variety of reduction techniques is attested.⁹ The above observations suggest that knapping was a circumscribed activity at Drakaina Cave, aiming at the fulfilling of a specific spectrum of

tasks.

A remarkable feature of the Drakaina Cave lithics is the selective usage of reddish chert. The symbolic connotations of the colour red have been extensively discussed in the archaeological literature.¹⁰ In the case of Drakaina lithics, reddish chert was almost exclusively reserved for projectile tips (13.6% vs. 1.3% for other tool types). Its flaking quality is unrelated to this pattern, since a variety of “honey” coloured chert, which is generally of very fine quality, was regularly utilised for the manufacture of other tool types. It seems therefore that functional considerations cannot account for the fact that reddish chert was avoided for artefacts other than projectiles.¹¹

It has been stated that colour can act as a binding element, symbolically bridging different parts of the material world.¹² In this line of reasoning, the assumption that the colour red had a metonymic role related with some facet of local ideology is further supported by the abundance of ground stone tools used for the processing of red pigment (n=56). Furthermore, sherds of burnished ceramic vessels also bear residual stains of red pigment.

The possibility of some kind of rites involved in the construction of a “male” ideology and identity, mediated through the “engendering” of red colour symbolism, seems attractive. The utilisation of reddish chert would be limited to projectile points perhaps in order to solidify the values with which the colour red was symbolically connected, such as hunting, warfare or masculinity in general.

The interrelatedness of “technological” and “social” in Drakaina Cave use

Essentially, the morpho-technologically conservative character of the projectile tip assemblage, their apparent symbolic connotations and their manufacture and use in the context of special circumstances at Drakaina Cave seem interrelated. It can be suggested that LN I projectiles were discarded following a

formalised and repetitive sequence of events. Such events possibly included the use of red pigment, perhaps for the adornment of the bodies of the participants and/or for smearing burnished ceramic vessels, as well as knapping aiming primarily at the manufacture of projectile points. The strong tendency of spatial concentration of projectile points towards the external part of the cave during LN I is remarkable in this respect, being indicative of separate activity zones within the cave.

The idea that technologies and modes of social organisation are inseparably bounded has gained ground recently.¹³ It can be reasonably stated that they can be mutually constituted and transformed.¹⁴ However, elements of material culture can be a fundamental part of the “habitus” or identity of a given group to such a degree that their manufacture can in some cases resist profound social changes.¹⁵ Furthermore, it has been noted that forms of social control are frequently associated with the transmission of technical skills/knowledge, in a repetitive or ritualised form.¹⁶ The persistence of asymmetrical points throughout the LN and the construction of lime-plastered floors for an even longer time span suggest a consistent system of vertical transmission. Such a system seems directly related to the negotiation of local identity and communal memory, through social gatherings and ritual at Drakaina Cave.¹⁷

The social and/or symbolic importance of weaponry manufacture at Drakaina Cave is perhaps highlighted by a possible fragmentary clay model of an arrow shaft straightener. It is hard to envisage how a clay artefact could have been usable for an activity involving intense friction that would rapidly destroy the U-shaped groove. Moreover, striations or other signs of use are absent.

Drakaina Cave as part of a social landscape

Drakaina Cave was a focal point regarding the negotiation and perpetuation of a “local” ideology, through festive events, as a part

of a landscape with multi-faceted power.¹⁸ The gorge is the only passage from the south-eastern coast to the interior of the island, which is sealed by a coastal row of hills and mountains. Being a prominent landscape feature, visible from afar, it featured until recently in tales involving deities and other supernatural entities. It was in all likelihood pivotal in local cosmological and mythological tradition during the Neolithic as well, being a prominent “ancestral” landscape feature.¹⁹ The cave itself is secluded and hardly accessible. Difficult access and remote location are characteristics of sites with some sort of special use in many ethnographically well-documented societies.

In any case, there are obstacles in positioning the cave’s use with its abundance of projectiles in a merely economically oriented framework of subsistence strategies. The percentage of wild fauna in the archaeozoological material is rather low and comparable with that of Neolithic sites in the Aegean area.²⁰ Moreover, the location of the cave among nearly vertical cliffs would limit the use of the site for routine hunting purposes. Other localities around the gorge are far more suitable in practical terms, without the disadvantage of moving on very steep terrain. The importance of hunting in regard to the cave’s use might lie in constructing an engendered identity, as well as in creating a specific social perception of the landscape.²¹ We should not postulate that any hunting activities were disconnected from subsistence, though, since in traditional societies domestic/subsistence and ritual aspects are often inseparable.²²

The use of caves for the negotiation of “male” identity through initiation rites has been argued for a number of sites in South-Eastern Italy.²³ Even though we will argue that the impetus for the performance of non-domestic activities at Drakaina is more probably intrinsic to the group(s) using the cave, it is possible that certain features of the cave’s use, or even the selection of a cave site for such activities, are the outcome of contacts with the wider Ionian-Adriatic area. It has to be noted that the four-legged

“Danilo” scoops can be interpreted as a sign of shared ritual practices from the Northern Adriatic region to Southern Greece.

The Drakaina Cave symbolic aspects in context

It is noteworthy that large assemblages of projectile tips are characteristic of many Cycladic LN and FN sites. That can be related to economic factors, warfare or aspects of power negotiation.²⁴ These features might have been to some extent correlated with insularity.²⁵ It is thus important to evaluate the possible role of an insular environment in projectile points' increased use and, as the Drakaina Cave data suggest, symbolic value.

During the Neolithic, exchange networks and mutual relations with other groups were crucial for sites' long-term viability, as well as for the viability of specific households.²⁶ Contacts with the mainland, however, involved considerable *ad hoc* seafaring, rather than being embedded in a more flexible network of down-the-line exchange. That does not necessarily entail that interregional contacts were harder to maintain, but rather that they had a different socio-economic basis. A smaller fraction of individuals or households would be directly involved, providing opportunity for aggrandising behaviour and elevated attained status.²⁷ In addition, group fission, which might compensate for resource shortages or intra-group tension, appears as a less enticing option in the case of an island lying at distance from the mainland. Pressure exerted on a system of social organisation with egalitarian or horizontal hierarchical principles could be conducive to competition and increased episodes of conflict, especially during “bad years”.

Such pressure was alleviated by the moulding of an identity based on local tradition and incorporating a symbolic relationship with the past and the ancestors. The operation of socially cohesive mechanisms has been claimed within the framework of the Greek Neolithic,²⁸ albeit with differing characteristics. The identity

negotiated at Drakaina Cave had a distinct “male” orientation, putting symbolic emphasis on weapons, since that was crucial in bolstering group cohesion in instances of crisis and inter-group competition. It was partly expressed with the construction of a material culture boundary with the mainland, selectively involving projectile tips. Such a situation finds parallels in ethno-archaeological accounts, in which certain material culture elements are employed for the construction and maintenance of a social boundary.²⁹

The creation of a material culture boundary setting Kefhalonia apart from the mainland involved local intra- and inter-group processes³⁰ rather than being directly connected to mainland groups. Demarcated local identity and symbolic reference to the past, functioning as defining factors of local power negotiation and social structuring, could also aim at curtailing the influence of interregional networks.

At any rate, we should not view the existence of such a local ideology as antagonistic towards interlocal relations, but rather as complementary. The forging of a corporate identity based on local tradition could facilitate the incorporation of exchange networks within the local social context, mitigating any adverse effects.

Pottery and ornaments in the context of social gatherings

Pottery fragmentation provides some further evidence regarding the nature of the gatherings in Drakaina Cave. In the case of Drakaina I, Urfirnis and matte-painted pottery, as well as four-legged scoops, exhibit a distinctively high degree of fragmentation. Many different vessels are represented only by one sherd and rarely by more, while in almost all cases just a small part of any given vessel is preserved. Burnished and coarse pottery vessels, on the other hand, are more frequently represented by more numerous, joining sherds. It seems that some kind of selection was affecting the fragmentation pattern among separate

pottery varieties, which tended to have differing biographies.

Urfinis and matte-painted pottery was prone to be part of intercommunal exchanges. Moreover, such pottery was used and consumed during activities of special, non-domestic character.³¹ Neither Urfinis nor matte-painted ware sherds from Drakaina Cave ever exhibit repair holes, in marked contrast with black burnished and coarse ware fragments. This fact, combined with their pronounced degree of fragmentation, suggests that Urfinis and matte-painted pots may have been consumed during the gatherings taking place in Drakaina Cave, their life span being commensurate with the non-domestic circumstances of their use at the site. The circulation of sherds after their consumption might have been part of the articulation of the aforementioned corporate identity, creating enchainment relations.³²

The *Spondylus gaederopus* bracelets found in Drakaina Cave have to be considered as well. Eight fragments, dated to early LN I, belong to between four and six bracelets. Such ornaments could be locally made. Nevertheless, during the second half of the 6th millennium BC *Spondylus gaederopus* bracelets were part of an extended exchange network, reaching large parts of the LBK territory over Central Europe. This may have added to the value of the Drakaina Cave specimens, which were fragmented, burned and discarded as part of a single event, since all fragments were found in the same layer and trench. It is not possible, however, to evaluate more precisely their significance in relation to interregional connections or an engendered symbolic code negotiated in Drakaina Cave. In the contemporary LBK area *Spondylus gaederopus* bracelets were associated with male graves,³³ but it is unclear if such a gender-specific association existed in the Aegean area.

Evidence for social change at the transition to Drakaina II

The transition to the Drakaina II phase is witness to multiple

changes. Several material culture elements appear contemporaneously, including tanged points, pithoid vessels with plastic decoration and polychrome wares. At the same time, there is a significant intensification in the construction of lime plaster floors.

There are reasons to believe that the local, socially integrative identity mentioned earlier, exhibits signs of disintegration or at least some kind of change during the LN II period. Despite the continuing manufacture of asymmetrical points, the appearance of tanged points signals the blurring of the material culture boundary with the mainland.

Moreover, a group of very skilfully made, large tanged and barbed points (Fig. 30.5) differ from the rest in every stage of the operational sequence in their production. Only reddish or “honey”-coloured chert was utilised, unlike the rest of the projectiles, for which any kind of raw material was used independently of the degree of technical expertise. Prismatic blades were used as blanks, while manufacture should have involved at least one intermediate preform. As the outcome of a distinctly standardised production, specimens of this group exhibit a very similar size and length/width ratio. Such projectiles were seemingly endowed with a different symbolic capital, perhaps being involved in novel processes of power negotiation entailing little or no overlap with the traditional role of projectiles during LN I.

It is notable that the standardised projectiles from Drakaina Cave are very similar to a point from Kitsos Cave in Attica, made of “chocolate” coloured flint, which dates to LN II.³⁴ It seems that from the later stages of LN onwards such points were part of an exchange network originating in areas outside the obsidian trade sphere. In addition, the similarities in size, length/width ratio and overall morphology indicate that such points were elements of a well-defined symbolic code grounded in warfare/hunting and interregional connectivity/gift exchange.

At the beginning of the FN the trends of LN II were consolidated by a much more extensive exchange network. This is manifested by the circulation of *large triangular points*, perhaps more suitable for display, throughout Greece and the Balkans.³⁵ Two triangular points have been found at Drakaina Cave, one of which is probably unfinished. It is important that both triangular and standardised tanged and barbed points are generally made of siliceous raw materials, which shows that, at least at the areas where obsidian was dominant, such exchange was driven by the desire for exotic objects and the material manifestation of distant contacts. That may well be relevant to the social context of the changes characterising the Drakaina II phase.

A further notable feature of the Drakaina II phase is the change in spatial distribution of projectile tips. These are no longer clustered but rather more sparsely yet evenly encountered, a fact underlined by the distribution of tanged points. This might entail that projectile points ceased to be deposited as part of a formalised procedure, centred on a particular activity area.

Regarding pottery, polychrome and crusted wares no longer display the conspicuously high fragmentation of earlier Urfirnis or matte-painted pottery. Even though many vessels are still represented by only one sherd, a number consist of several joining pieces.

To sum up, in the Drakaina II phase there is a dichotomy between two distinct groups of projectile tips on the basis of raw material utilisation, technology and degree of skill and know-how. This feature, in comparison with the situation during the LN I period, points towards the emergence of some kind of social segmentation and inequality. This would be congruent with a pattern postulated for the later stages of the Greek Neolithic.³⁶ Decorated pottery fragmentation also shows a differential treatment of painted ware vessels, shifting away from the uniformity of the preceding period. Moreover, projectile tips do not exhibit a clustered spatial distribution, as they did in LN I. The

two latter features suggest that particularly structured aspects of the cave's use faded after the end of the Drakaina I phase.

The preceding discussion favours a relationship between incipient social differentiation and a reorientation of the ties of local groups with the mainland. It is more challenging to evaluate whether changing elements of symbolic expression in Drakaina Cave fit into the same picture. The Drakaina II phase is characterised by an upsurge in the construction of lime plaster floors, which were more extended, thicker and constructed at shorter intervals.

The construction of lime plaster floors was a multi-staged task, partly carried out outside the cave, while at least the production of lime plaster required some level of specialised know-how. It is notable that lime plaster already had a long history of use in ritual contexts in the Near East and Anatolia.³⁷ In the case of Drakaina Cave, several properties, such as the plaster's whiteness and its more complex procedure of production in comparison to other plasters, very likely contributed to the ascription of symbolic significance. Such a procedure, with a visually evocative result, might have been used by certain groups in order to emphasise certain ritual aspects of such gatherings. Thus, the construction or renewal of lime plaster floors could have been carried out in conjunction with ceremonial events. Whatever the actual circumstances, the intensification of lime plaster floor construction is an important feature, concomitant with other changes in the material culture record.

Concluding remarks

As an epilogue, we can say that the LN I period exhibits certain peculiarities in Drakaina Cave. They stem, we believe, from an idiosyncratic trajectory of dealing with local social tensions, on which aspects of insularity very likely had a bearing. This involved heterarchy and interplay between network-oriented relationships and a communal identity rooted in local tradition. Any differences

of this island society from Mainland Greece, however, should not force us to disassociate the use of Drakaina Cave from the upsurge in the use of caves in Southern Greece during the LN/FN periods. Evidence for growing regionalism exists after the end of the MN period.³⁸ Non-domestic aspects of cave use can be related to changing perceptions of territoriality or group identity.

The Drakaina II phase appears to be more in line with developments in the wider Aegean area. There are indications that social segregation started to become reflected in the material record. Developments in the adjacent areas of the Greek Mainland seemingly exerted an increasing influence on local communities, rendering the effectiveness of levelling mechanisms promoting social cohesion redundant. Repetitive, symbolically charged practices certainly continued to be carried out in Drakaina Cave. They might differ in many respects, though, from those of earlier times, and some elements, such as red colour symbolism, seem to be reinterpreted.

The LN/FN transition in Drakaina Cave is meaningful as a gradual process. The LN II phase in Drakaina Cave shows some evidence of continuity from LN I, such as the use of asymmetrical points or black burnished pottery. It is, however, more closely related to the FN period, since important novel characteristics are documented in early LN II that continue into FN.

As a consequence, we believe that we can get some insight into the long-term social dynamics of an area that is sparsely studied, and evaluate to some extent its position within the Greek Neolithic, at least for the time frame covering the LN and the early stages of FN. Future research on settlement data is of course necessary to further address many issues that have been touched upon in this paper.

Notes

¹ Chatzioti 2007; Stratouli 2005; Stratouli 2007.

² Karkanis and Stratouli 2008.

- 3 See V. Melfos's contribution in Stratouli *et al.* 2014, 30–1.
- 4 See A. Sarpaki's contribution in Stratouli *et al.* 2014, 26.
- 5 See E. Kotzabopoulou's contribution in Stratouli *et al.* 2014, 27.
- 6 e.g. Sarauw 2007; Taçon 1991; Warburton and Duke 1995; Wilkins 2010; for the Greek Neolithic see Perlès 1992, 143; Perlès 2004, 148–9.
- 7 Sackett 1985.
- 8 Kourtessi-Philippakis 2006b, 169–70.
- 9 Sørensen 2006.
- 10 e.g. Borić 2002; Erdoğan and Ulubey 2011; Scarre 2004; Stafford *et al.* 2003.
- 11 cf. N.H. Andreasen's contribution in Stratouli *et al.* 2014, 29–30.
- 12 Young 2006, 180.
- 13 e.g. Dobres 2010; Dobres and Hoffman 1994; Lemonnier 1992; van Gijn 2010.
- 14 e.g. Boivin 2004.
- 15 González-Ruibal *et al.* 2011.
- 16 Apel 2001; Stout 2002, 701–3.
- 17 See Connerton 1989; Jones 2003; Peterson 2013.
- 18 For the Greek Neolithic see Tomkins 2009, 137–8; Tomkins 2012, 67–9.
- 19 Ashmore 2004; Bradley 1998b; Tilley 1994.
- 20 cf. E. Kotzabopoulou's contribution in Stratouli *et al.* 2014, 27.
- 21 See Hamilakis 2003.
- 22 Bradley 2005.
- 23 Whitehouse 1992; Whitehouse 2002.
- 24 Carter 2008a, 227–8.
- 25 For the importance of insularity in distinct cultural trajectories see Knapp 2007.
- 26 See Perlès 2001, 297; Souvatzi 2013, 59.
- 27 For the significance of distance in such networks see Helms 1988.
- 28 Halstead 2004; Kotsakis 1999; Souvatzi 2008, 216–30.
- 29 Akkermans 1993, 318–21; Dietler and Herbich 1998; Gosselain 2000; Hodder 1982; Welsh and Terrell 1998.
- 30 See Hodder 1982; Larick 1986.
- 31 Perlès and Vitelli 1999.
- 32 See Chapman 2000a.

- 33 John 2011, 41.
- 34 Perlès 1981, pl. VIII, 19.
- 35 Carter and Ydo 1996, 164–5; Demoule and Perlès 1993, 394.
- 36 Halstead 1999; Hamilakis 2003, 242–3; Tomkins 2004.
- 37 Clarke 2012.
- 38 Perlès and Vitelli 1999.

Caves and the landscape of Late Neolithic to Early Helladic I Greece: Comparing excavation and survey data from the Peloponnese

*Daniel J. Pullen*¹

Introduction

In this article, I compare material recovered through excavations with that recovered through survey in order to more fully understand the long-term dynamics of change in settlement patterns throughout the long period of the Late Neolithic (LN), Final Neolithic (FN) and Early Helladic I (EH) in the Peloponnese. The impetus for this contribution stems from my participation in the ongoing Diros Regional Project, under the direction of Dr G. Papathanasopoulos and Dr A. Papathanasiou. The Diros Regional Project has three principal goals: to publish the materials excavated in the Alepotrypa Cave; to conduct a regional survey around the Bay of Diros to contextualise Alepotrypa; and to excavate an open-air FN site adjacent to the cave. My role in this project is to analyse the finds, especially the ceramics, from the survey and the open-air excavation. Thus I am faced with the problem of how to compare data derived from an intensive, regional survey with data derived from excavations, as well as

how to interpret material from the very different contexts of an open-air site and a cave site.

I concentrate on three areas in the Peloponnese of Southern Greece where both excavation of a cave and/or open-air site and a survey have recovered material dating to this period: the Southern Argolid (Franchthi Cave, Halieis, and the Southern Argolid Survey); the Northern Corinthia (Ancient Corinth, Gonia, the Sikyon Survey, and the Eastern Korinthia Archaeological Survey); and the Mani (Diros: Alepotrypa Cave and the Diros Regional Project). While refinement of our ceramic identifications and chronological control for these periods is beyond the scope of this paper, nevertheless a systematic comparison of data derived from excavation with data derived from survey should help explain the patterns of settlement. I suggest that there is regional variation in the long-term patterning of settlement within the Peloponnese, with the Northern Corinthia more similar to Central and Northern Greece.

The Southern Argolid

In the Southern Argolid we are fortunate to have both an excavated cave site and an excavated open-air site, in addition to a regional survey (Fig. 31.1). Franchthi Cave provides one of the longest stratigraphic sequences for the Stone Age in the Aegean.² At Halieis, excavations on the acropolis produced a small quantity of mixed FN–EH I material.³ One of the major goals of the Southern Argolid Survey was to look not only at the territory immediately around Franchthi and the later site of Halieis, but to explore the entire Hermionid.⁴

During the LN, Franchthi was visited only for short periods of time, and most likely for special purposes. Only the interior of the cave was utilised, with no evidence for LN activity on the open-air Paralia portion of the site. K. Vitelli has divided the LN sequence at Franchthi into two phases, Franchthi Ceramic phases 3 (FCP 3) and 4 (FCP 4).⁵ In both phases a small number of vessels is

represented, but a large proportion are carefully finished and decorated pots with few coarse or cooking pots (and none exposed to a fire). While most of the FCP 3 pottery was apparently locally made, there are similarities with ceramics throughout Greece, leading Vitelli to conclude that “it is clear ... that whoever was responsible for the FCP 3 pots at Franchthi had a wider experience of the Greek Mainland than had been true in the earlier Neolithic.”⁶ Vitelli notes in particular the great diversity in wares, most well decorated, in FCP 4, the later LN,⁷ and suggests that a larger portion of the pots than in FCP 3 was not local. One deposit included a number of unusual items including a carbonate loaf-shaped object with decoration (FC 107), the well-known seated female figurine (FC 118), and four-legged rhyta with post-firing decoration in white lime and red pigments, similar to those of the Dalmatian Danilo culture, signalling ritual activity in the cave.⁸

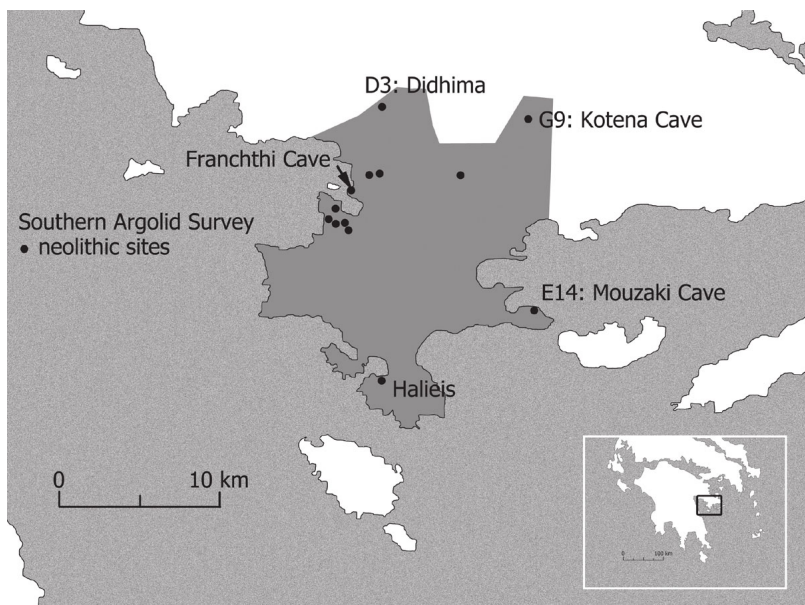


Figure 31.1. The Southern Argolid, showing the location of Neolithic sites. The approximate area of coverage by the Southern Argolid Survey is shown, as well as principal sites.

Franchthi Ceramic phase 5, probably representing several centuries in the long FN period, sees more extensive activity in the cave and also now outside on the Paralia.⁹ The FN ceramics display great variation, making them difficult to place in a typology, but in general pottery production seems to be expedient and *ad hoc* in its manufacture.¹⁰ In particular Vitelli notes that the low firing adds to problems of preservation, with sherds often only 3-4 cm in maximum diameter.¹¹ Like in the earlier FCP 3 and FCP 4, FN activity seems to occur in relatively brief episodes, not continuous occupation, but the FN activity is more extensive and perhaps represents a greater variety of activities than in the LN. The last few centuries of the FN period are not well represented at Franchthi, in part due to much disturbance of the sediments inside the cave. There are reports of some EH material, but this has not been systematically reported nor identified beyond a general “Early Bronze Age”.¹²

In the Southern Argolid Survey, published before Vitelli’s publication of the LN and FN ceramics from Franchthi Cave, we identified no sites dating to the Early Neolithic, only a few sites dating to the Middle Neolithic (MN) and LN, and many more to the FN and EH I, but based on a small number of sherds recovered.¹³ For the MN, two sites, D3 (Didima Cave) and E14 (Mouzaki Cave), yielded small amounts of MN pottery, including a number of examples of Urfirnis-painted pottery of different varieties.¹⁴ The LN material is more problematic. Originally, we identified four sites with LN material: the Didima Cave and Mouzaki Cave to which we added an open-air site E5 and the Kotena Cave (G9) in the highlands. At none of these sites was LN plentiful. Subsequently, Vitelli’s publication of the Franchthi pottery has questioned these attributions, stating that “none of the six illustrated sherds is compellingly LN,”¹⁵ and has suggested that much of what we identified is perhaps MN or FN.¹⁶ If Vitelli’s re-identifications of the LN material from the Southern Argolid Survey hold, then LN activity in the Hermionid may be reduced to

only the evidence at Franchthi Cave.

The Southern Argolid Survey found plentiful evidence for FN activity in the Hermionid, at 36 sites in addition to Franchthi Cave and Halieis. But one of the problems we faced in identifying FN pottery was the fact that at all but two of these 36 sites material of both FN and EH I was found.¹⁷ Comparison of the survey material with that from Franchthi showed that there was little similarity and Vitelli suspects that most, and perhaps all, of the survey sites identified in the Southern Argolid Survey post-date the latest stratified FCP 5 (*i.e.* FN) material at Franchthi.¹⁸ The excavations at Halieis also revealed mixed FN and EH I material, with the FN material bearing little resemblance to that from Franchthi. Instead, the FN ceramics seem more closely linked to later EH I types in the fabrics, shapes, and decoration.¹⁹ For the EH I period, 42 sites were identified with material of this period, but over 30 of these sites had evidence for FN, and many continued on into EH II. Similar to the problems of separating FN pottery from EH I pottery as noted above, pottery of EH II was also sometimes difficult to differentiate from the local EH I.²⁰ The local EH I seems to be made in fabrics that continue from FN, in contrast to the fabrics more typical of the Northern Argolid and Corinthia; this local fabric continues into EH II, being used for typical EH II shapes, but it is in the minority and ceases to be used in the Southern Argolid after EH II.

Cave use in the Southern Argolid is much reduced in EH I over the preceding FN period. The Didima Cave has one possible EH I sherd, in contrast to 28 FN or possible FN sherds. No FN or later material was reported from the Mouzaki Cave (E14). Only the Kotena Cave (G9), in the highlands well away from the sea, saw continued use in EH I through EH III. A much smaller quantity of Early Bronze Age (EBA) material was found, compared to the FN period (over 125 sherds). Six sherds were identified as FN-EH I; some of them are probably FN, and four are typical EH I sherds.²¹ The EH II material is particularly interesting, in that of the five EH

II sherds recovered from the Kotena Cave, one is a sauceboat, three are rims of large bowls, and one is a dipper, all suggestive of a drinking assemblage.²² One Bass bowl of EH III date was also recovered.²³

We are thus left with the following scenario for the Southern Argolid. A modest, probably permanent settlement existed at Franchthi Cave in MN, with some activity at two other cave sites. During the LN, only the interior of Franchthi sees activity, and that only sporadically. This episodic activity in the Southern Argolid continues for much of the FN period, again only at Franchthi. Only in the later centuries of the FN period does more permanent settlement return to the Hermionid, at a number of sites, with continuity into the EBA. Franchthi Cave ceases to be occupied in any intensive way after FN, while the Kotena Cave sees some continued use, perhaps for special purposes, in the EBA. Open-air settlements dominate in the later FN and later.

The Northern Corinthia

The Northern Corinthia presents a pattern of Neolithic activity that is different from that of the Southern Argolid (Fig. 31.2). In the Northern Corinthian plain that stretches along the Gulf of Corinth roughly from Sikyon in the west to the Isthmus and the Saronic Gulf, we have several open-air settlements in a similar geological setting of the Northern edge of uplifted marine terraces, perhaps forming a larger system of interrelated occupation. We lack a cave in this region, though the nearby Klenia Cave in the Athikia valley just to the south of Corinth has produced much evidence of LN and FN.²⁴ Few of the Neolithic sites have been excavated, and none has been fully published; it is particularly unfortunate that, despite the first excavation of stratified Neolithic levels in the Peloponnese taking place in 1914 at Ancient Corinth by L. Walker Kosmopoulos,²⁵ so little has been published from Ancient Corinth other than preliminary reports or short summaries.²⁶

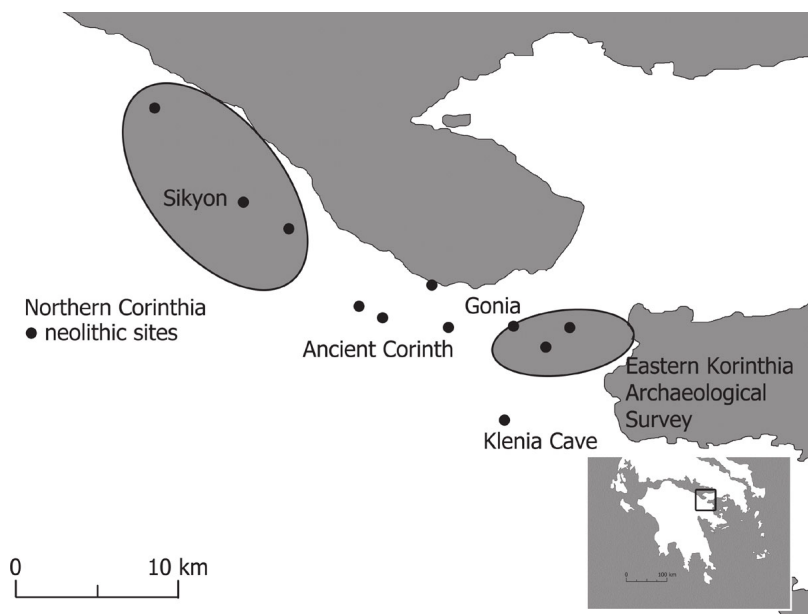


Figure 31.2. The Northern Corinthia, showing the location of Neolithic sites. The approximate areas of coverage by the Sikyon survey projects and the Eastern Korinthia Archaeological Survey are shown, as well as principal sites.

We also have the results of two surveys, one at either end of the region. In the west, the region of Sikyon was explored both extensively and intensively, though the latter component has not yet been fully published.²⁷ In the east, a small intensive study, the Eastern Korinthia Archaeological Survey, explored territory between Ancient Corinth and Isthmia.²⁸ The Sikyonia Survey discovered three sites with Neolithic material, one of which, site HS-39: Krinai/Litharakia 1 was previously known but without precise chronology.²⁹ The unspecified Neolithic found at Pasio Magoula includes a “husking tray” and “honey flint”,³⁰ the former might indicate an EN or MN date,³¹ the later type of material is found throughout the Neolithic period (and later) in Southern Greece.³² EKAS, co-directed by T. Gregory and myself, incorporated several of the marine terraces, including those upon

which Gonia and Perdikaria are located.³³ Perdikaria, a site long known for its Late Bronze Age cyclopean wall, lies south-east of Gonia; both have material from the MN through at least LH IIIB (but perhaps not from the latest sub-phase of the Late Bronze Age), yet the two sites are only 3 km apart. Our work at Perdikaria expanded the periods of activity recognised to include the MN, LN, and FN periods, in addition to EH I. We also identified EH I at Kromna (an EKAS site near Gonia and Perdikaria) and at a site near Isthmia.

Pottery of the MN period has been identified at Thalero/Kato Goulas north-west of Sikyon,³⁴ Krinai/Litharakia 1,³⁵ Ayios Gerasimos,³⁶ Ancient Corinth, Gonia, and Perdikaria (EKAS); only at Ancient Corinth and Gonia has MN been excavated, the remaining sites have MN identified through surface remains. Pottery of the LN has been found at Krinai/Litharakia 1,³⁷ Aetopetra,³⁸ Ayios Gerasimos,³⁹ Ancient Corinth, Gonia,⁴⁰ and Perdikaria; again, only at Gonia and Ancient Corinth has material of LN been found in excavations. Pottery of the FN is poorly reported, but is certainly found at Ancient Corinth and Gonia,⁴¹ but surprisingly not at Perdikaria, though FN was found at other locations in the Eastern Corinthia by EKAS. Unspecified “Neolithic” is identified at several sites, including Aetopetra and Dorati; at Dorati J. Marchand suggests some handmade sherds may be “Neolithic”.⁴² Undoubtedly more systematic surface work or excavation would probably increase the number of Neolithic sites or clarify the chronological periods of those labeled generically as “Neolithic.” EH I has been found at most of the sites producing FN, as well as at several new locations: Krinai/Litharakia 1, Aetopetra, Ayios Gerasimos, Cheliotomelos, Ancient Corinth, Korakou, Yiriza, Gonia, Perdikaria, Kromna, and Isthmia.⁴³

A common topographical location for these Neolithic sites is the northern, uplifted edges of ancient marine terraces.⁴⁴ This setting provides good views to the north towards the Corinthian

Gulf over the usually steep drop-off, and more gently rising slopes to the south. To the west of Ancient Corinth the sites are often adjacent to a stream, channel, or other feature that leads from the higher elevations in the south down to the lower coastal plain itself (e.g. Dorati along the Nemea river), whereas to the east of Ancient Corinth the sites are often located adjacent to natural transportation routes that crisscross the region. Many sites are intervisible with one or more other sites (e.g. Gonia and Perdikaria), and the distance between sites is seldom over 5 km, and often 3 km or less. Though the focus of my paper is the LN through EH I periods, I would like to note that many of the sites under discussion in the Northern Corinthia display remarkably long-lived occupation, and continue into many, if not all, phases of the Bronze Age and later.⁴⁵ Thus, within a distance of less than 30 km we have continuous occupation from the MN through EH I (and later) at six sites, with several others occupied for large portions of this long period. This is a large number of continuously occupied sites concentrated in a relatively small area.

T. Whitelaw argues, albeit for Bronze Age sites, that larger or more central sites, especially those that continue to be occupied for long periods of time, are located in more stable environments, while the smaller sites, more often short-lived, are located in less stable or more marginal environments.⁴⁶ I would extend Whitelaw's concept of stable physical environments to also include stable social and economic environments, and suggest that we can apply this in a general way to the Neolithic situation. The physical and socio-economic environments of the Northern Corinthia are stable, not marginal, compared to those of the Southern Argolid, and thus long-term occupation of sites is readily possible. The close, regular spacing of sites with similar long histories of continuous settlement indicates a stable socioeconomic landscape in the *longue durée*. In contrast, the Southern Argolid displays fluctuating, episodic usage, indicative of a marginal environment.

In surveys of other regions near the Southern Argolid and

Northern Corinthia, such as those of the Berbati, Nemea, and Asea valleys,⁴⁷ Vitelli argues that truly diagnostic LN sherds are not found.⁴⁸ Thus, besides those sites in the Northern Corinthia, LN activity in the North-Eastern Peloponnese is confined to caves or a few open-air sites such as Lerna or Aria.⁴⁹ In the Southern Peloponnese, Kouphovouno stands out as one of the few open-air sites that are apparently occupied continuously from MN through FN.⁵⁰

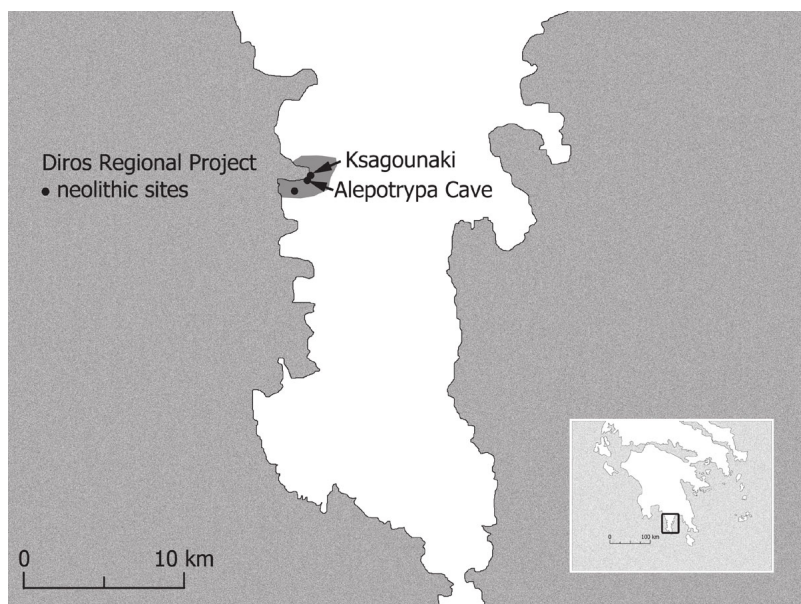


Figure 31.3. The Diros region in the Mani, showing the location of Neolithic sites. The approximate area of coverage by the Diros Regional Project is shown, as well as principal sites.

Alepotrypa Cave and the Diros region

My third case study is that of the Alepotrypa Cave in the Diros region of the Mani in the southern portion of the Peloponnese (Fig. 31.3). Excavations in the Alepotrypa Cave began in 1970 under Papathanasopoulos, and have continued since then, revealing stratified deposits covering the LN and FN.⁵¹ Several

locations within the cave were used for various mortuary activities, including primary inhumation and secondary reburial of all or parts of skeletons; many painted pots were found in conjunction with these, probably of LN date.⁵² Plentiful large storage containers and other vessels and much domestic equipment indicate that in the FN period certainly there were domestic activities taking place in the cave. The marble bowls and figurines, a selection of silver jewellery including a ring idol pendant found before systematic excavations were undertaken, and four bronze daggers are indicative of the contacts the occupants of the cave had with areas beyond the Mani.⁵³

In 2010, the Diros Regional Project, co-directed by Papathanasopoulos and Papathanasiou, was initiated to provide a regional context for the Alepotrypa Cave as the excavators prepare material for publication. This project includes an intensive pedestrian survey co-directed by W. Parkinson and M. Galaty and the excavation of an open-air site on the Ksagounaki headland adjacent to the cave, co-directed by Papathanasiou, Parkinson, and Galaty. Our third season of archaeological fieldwork took place in Summer 2013, thus all interpretations and conclusions should be considered very preliminary at this stage.

Our regional survey, conducted in two short seasons in 2011 and 2012 under very difficult conditions that included steep slopes, field boundary walls over 1.0 m in height and abundant maquis vegetation, has surveyed approximately 2.0 sq km, with another 0.7 km deemed unsurveyable. In addition to the expected Byzantine to modern material adjacent to the modern town of Pyrgos Dirou, and a small Classical to Hellenistic site at the coast where the modern remma is located, FN material was found in a few areas, such as on the large flat area of the headland south-west of the cave. The principal concentration of FN material, however, was located on the Ksagounaki headland just north of the cave. This site was collected in a 10 × 10 m grid to determine the density of prehistoric material. All of the material from the

survey is poorly preserved, and often quite small in size – truly a thumbnail view of the past. The small size of sherds recovered from the survey hampers identification of fabrics and shapes.

In 2012 two small excavation units were opened on Ksagounaki to test whether there were sufficient intact stratified cultural layers for further excavation. Our preliminary study of the excavated materials suggests that there is very limited activity on the site that can be dated to later than the FN, and this is confined to the plough-zone. Thus, we suggest that Ksagounaki is a single-component FN site. One of the trenches had a double burial of a child and an infant in a medium-sized FN pot, as well as a second burial of perhaps as many as three adult individuals, also associated with FN sherds. The other trench was excavated to bedrock, with no post-FN material in the lower levels. Of particular note is the large quantity of daub, or burnt clay nodules in this trench, indicating the potential for architectural features. The ceramics include both fragments of the relief-decorated pithoi found in the cave as well as a dark-faced, burnished ware also found in the cave. Unfortunately, the soil conditions are not conducive to good preservation of the ceramics, with most sherds taking on a reddish sheen; both surfaces and breaks of the sherds have a hard crust.

Though the Diros Regional Project is a work in progress, and the regional survey is fairly limited in geographical extent, it is noteworthy that no material of either the LN or the EBA has been detected in the survey territory. Likewise, no material of the EBA has been identified from the cave. We therefore have a situation that is perhaps similar to that in the Southern Argolid whereby LN activity is confined to a cave, but in the FN, activity spreads to include open-air sites adjacent to the cave and the surrounding region.

Conclusions

A critical issue arising from this study is to explain the contrast

between the long-term stable pattern of the Northern Corinthia and the fluctuating “unstable” pattern seen in the Southern Argolid and elsewhere in the Peloponnese. Particularly important is why the LN is so sparsely documented in both excavations and surveys in areas of the Peloponnese such as the Southern Argolid. As P. Demoule and C. Perlès point out, the LN in Southern Greece is different from Central and Northern Greece in many ways, including increased cave use in the south and greater emphasis on some forms of nomadic pastoralism, in contrast to the increasing number of open-air settlements and their more regular spacing in northern regions and a more balanced mix of agriculture and husbandry.⁵⁴ The south lacks the examples of architecture found at Thessalian sites such as Dimini. In this respect, the Northern Corinthia seems to follow the patterns of Central and Northern Greece, rather than those of Southern Greece.

One obvious explanation would be that ceramics of this period are of the types that J. Rutter characterises as “low visibility” and thus are not readily identifiable on the surface.⁵⁵ Various attempts have been made to try to compensate for the low visibility of certain periods in surface surveys, but this is based on the idea that densities of material are significant for interpretations of settlement patterns.⁵⁶ R. Schon, working with the EKAS data, attempted to deal with the problem of those “ambiguous” sherds that may be only generally dated to a broad period (e.g. EBA) or that may overlap two or more periods (e.g. FN–EH I).⁵⁷ Schon himself, however, admits that he isn’t entirely convinced by his own methodology.⁵⁸

Another, related explanation has to do with the preservation of materials on the surface. As noted above, sherds of FN date excavated at Franchthi tend to be small and worn, a result of low firing.⁵⁹ One might, then, expect sherds of FN date to be less common than sherds of the LN that are much higher fired, yet it is the poorly preserved FN material that is more widely documented in excavations and surveys. The LN material is more often fired at

higher temperatures, and features decoration that adheres better to the surface (e.g. matte-painted, polychrome), yet it is by far the less common in many areas of the Peloponnese, especially in surveys.

Vitelli offers a novel explanation for why the evidence for LN activity is so sparse in the Hermionid in particular, and in the Peloponnese in general.⁶⁰ She argues that the distinctive LN vessels known from excavations were used by the people of the LN “only for special occasions, at special sites”; in their daily lives, the LN people “either used no pottery at all, or not the distinctive pottery” found at excavated sites.⁶¹ Thus LN pottery would have low visibility in the survey landscape. Vitelli ties this low visibility of LN pottery in the landscape with the increased focus on pastoralism and increased use of upland caves. She suggests that for various occasions larger groups would gather at sites of special significance, such as Franchthi, where elaborate ceramics would be made for the occasions.

But how can we reconcile a Peloponnese of pastoralists, no matter what degree of mobility, with some of the other changes that take place in the LN? Demoule and Perlès note a sharp increase in the proportion of obsidian used in Southern Greece, with a great variety of forms of the imported material suggesting direct procurement from Melos at this time.⁶² The relative absence of sickle blades in the south may be related to the economic preference for pastoralism. The first metal objects, probably traded from the north as finished products, appear in LN, and spondylus shell bracelets also become more common.

Probably much of this increased interaction took place by sea. It is in the LN that we see increased human activity in the Aegean islands, with episodes of settlement.⁶³ One particularly intriguing observation by C. Broodbank in his discussion of colonisation of the Cyclades is that from Attica or Euboea short, one-day crossings link the mainland to the islands. In contrast, much of the Peloponnese is far removed from such convenient short

crossings.⁶⁴

Yet the Peloponnese is not just a land of pastoralists or visitors to caves. Kouphovouno is an example of a long-term open-air settlement where both finer and coarser LN ceramics are plentiful, though the settlement size may be much reduced from its MN predecessor.⁶⁵ W. Cavanagh and C. Mee argue that, despite sparse settlement in the Peloponnese, LN sites are engaged with long-distance exchange: they, as others, cite objects such as the four-legged rhyta known from Kouphovouno, Alepotrypa, Aria, Franchthi, Corinth, and sites in Northern Greece and the Adriatic.⁶⁶

In the later part of the FN settlement patterns change dramatically. Broodbank suggests that a second wave of colonisation into the North-Western Cycladic islands perhaps coming from Attica and Euboea via convenient short-haul voyages took place then.⁶⁷ Nearly everywhere that surveys have been conducted in the Peloponnese, sites dating to the later FN are plentiful in a variety of environmental locations, and not primarily in caves. This is the case in the Diros region. Occupation continues in Alepotrypa Cave from LN into FN, and in FN for the first time we have open-air sites. Undoubtedly if we were to expand our survey, we would find more sites of the FN period, though probably none of earlier Neolithic date. And as our excavations on Ksagounaki continue, we hope to explain what different activities might have led to living in the new open air of the FN of the Peloponnese.

Notes

- ¹ I would like to thank the Organising Committee of the conference for the invitation to speak, and K. Sarri for her consummate organisation skills. I would also like to thank my colleagues on the Diros Regional Project, especially G. Papathanasopoulos, A. Papathanasiou, W. Parkinson and M. Galaty, for their comments on this contribution. In addition, T. Cullen and T. Tartaron provided many useful comments.

- 2 Jacobsen 1976.
- 3 Pullen 2000.
- 4 Jameson *et al.* 1994.
- 5 Vitelli 1999.
- 6 Vitelli 1999, 97.
- 7 Vitelli 1999, 61, tab. 4.3.
- 8 Vitelli 1999, 97–8.
- 9 Vitelli 1999, 98–9.
- 10 Vitelli 1999, 64–6.
- 11 Vitelli 1999, 65.
- 12 Vitelli 1999, 91 and in *passim*.
- 13 For the Southern Argolid Survey in general, see Jameson *et al.* 1994; Runnels *et al.* 1995; for Franchthi Cave, see Vitelli 1999. For distribution maps of Neolithic material from the Southern Argolid, see Jameson *et al.* 1994, 233–5, fig. 4.9–12; for quantities of Neolithic finds identified at sites, see Pullen 1995, 6–7.
- 14 e.g. Pullen 1995, nos 1–5.
- 15 Vitelli 1999, 98 and 104, note 4, referring to Pullen 1995, nos 6–11.
- 16 Thus Pullen 1995, nos 6–7, are perhaps FN heavy burnished bowls; polychrome painted bowls such as Pullen 1995, no. 8, could be of FN date as that decorative style continues; Pullen 1995, no. 10, is probably a variety of MN Urfinnis; and the remaining two published pieces, Pullen 1995, nos 9 and 11 “present nothing truly diagnostic of Late Neolithic, [and] would not be out of place in FCP 5 [*i.e.*, FN]” (Vitelli 1999, 104, note 4).
- 17 Pullen 1995, 7.
- 18 Vitelli 1999, 99.
- 19 Pullen 2000, 185–6.
- 20 Pullen 1995, 10–1.
- 21 Including Pullen 1995, nos 142, 157.
- 22 The large bowl rims are catalogued as Pullen 1995, nos 292, 293, 304.
- 23 Pullen 1995, no. 709.
- 24 Chatziangelou 2013.
- 25 Phelps 2004, 8; Walker-Kosmopoulos 1948.
- 26 Lavezzi 1978; Lavezzi 2003.
- 27 Lolos 2011, xxviii.

- 28 Tartaron *et al.* 2006.
- 29 Lolos 2011, 441–2. This site is also known in the literature as Krines/Braibey or Tarsina.
- 30 Lolos 2011, 294, 482–3.
- 31 Blegen 1975, 270, note 37.
- 32 For instance, at Franchthi; see Perlès 2004, 10–1, for qualifications on the identification of “honey flint”; 51 tab. 5.1, 155–8.
- 33 Gonia (Blegen 1930); Perdikaria (Blegen 1920).
- 34 Lolos 2011, 293, 495 site HS-119.
- 35 French 1972, fig. 6; Lolos 2011, 294, 441–2 site HS-39.
- 36 Weinberg 1970, map 16, no. 46.
- 37 Lolos 2011, 294, 441–2 site HS-39; Phelps 2004, 65.
- 38 Blegen 1920, 3–4; Weinberg 1970, map 17, no. 96.
- 39 Weinberg 1970, map 17, no. 97. The identification of LN pottery at Ayios Gerasimos by Weinberg needs to be confirmed, as he utilised the old chronological terminology that did not recognise the FN period.
- 40 Blegen 1930.
- 41 Blegen 1930, EKAS files.
- 42 Marchand 2002, 125. Unfortunately, many scholars lump together the four millennia of the Neolithic period into a single component, due to inadequate knowledge of the ceramics. But based on personal experience in looking at ceramics from the Corinthia labelled “Neolithic”, these are often FN in date.
- 43 French 1972, fig. 9; Hope-Simpson and Dickinson 1979, EKAS files.
- 44 Lolos 2011, 304–5; “coastal bluffs” in Morgan 1999, 354; Marchand 2002, 131; Pullen and Tartaron 2007.
- 45 Lolos 2011, 293–300, 366; Pullen and Tartaron 2007.
- 46 Whitelaw 2000. In a similar vein Haggis 2002, 123, considering the case of Prepalatial Crete, has argued that systems which lack clear hierarchy are well integrated, that is, characterised by a “multiplicity of linkages between individuals, sites, and the landscape itself,” and are perhaps the most stable adaptations to Aegean landscapes.
- 47 For LN in the Berbati Valley, see Johnson 1996b; for the Nemea Valley, see Cherry *et al.* 1988, 174–5; and for the Asea Valley, see

Forsén and Forsén 2003.

48 Vitelli 1999, 98.

49 For Lerna, see Vitelli 2007; for Aria, see Douzougli 1998.

50 Cavanagh and Mee 2005.

51 Papathanasopoulos 1996, 80–4. The well-preserved Urfirnis-painted jar from Alepotrypa, Papathanasopoulos 1986, 220 no. 24; Papathanasopoulos 2011, 201, no. 148, may date to the MN. Unpublished radiocarbon dates also point to MN deposits; my thanks to Papathanasiou for this information.

52 Papathanasopoulos 1996, 175–7; see also Papathanasopoulos 2011. A detailed study of the skeletal material from Alepotrypa can be found in Papathanasiou 2001.

53 Papathanasopoulos 1996, 223–5 nos 30–3 and 227–8, nos 41–4.

54 Demoule and Perlès 1993.

55 Rutter 1983.

56 See the scholarly debate on “hidden landscapes” initiated by Bintliff *et al.* 1999.

57 Schon 2011.

58 Schon 2011, 240.

59 Vitelli 1999, 64–6.

60 Vitelli 1999, 100.

61 Vitelli 1999, 100.

62 Demoule and Perlès 1993, 393.

63 Broodbank 2000, 117–43, esp. 122, fig. 34.

64 Broodbank 2000, 131–2.

65 Cavanagh and Mee 2005.

66 Cavanagh and Mee 2005, 29–31.

67 Broodbank 2000, 131–2.

New evidence for the beginning of habitation at Aigeira, Achaia (Greece)

*Walter Gauss*¹

Introduction

The site of Aigeira is located close to the southern shore of the Corinthian gulf mid-way between modern Corinth and Patras in the foothills of Mt. Evrostinos. It occupied a highly defensible position atop a steep hill crowned by an acropolis sanctuary, which overlooked the gulf and controlled an inland route to the Central Peloponnese.

The historical site was vividly described by Polybius (4.57–8) and Pausanias (7.26.1–4) and parts of its public centres, particularly the theatre and acropolis area, were intensively excavated since the 1970s.² The acropolis housed a sanctuary presumably from the Middle to Late Geometric periods,³ which was preceded by a multi-phase Mycenaean settlement of the Late Bronze Age; in its latest stage, the acropolis of the Mycenaean settlement was protected by a massive fortification.⁴ Remains of even earlier habitation were found on the acropolis particularly underneath the floors of the earliest Mycenaean houses and in crevices in the bedrock but also in a deep trench, situated on a lower plateau ca. 150 m east of the acropolis (Fig. 32.1).⁵ Some of these earliest finds were originally thought to be of Late Bronze

Age date⁶ but subsequent study and publication showed that a substantial amount actually belonged to the Late Neolithic, Chalcolithic and Early Bronze Age times.⁷ In comparison to the abundant Late Bronze Age finds, relatively few pre-Late Bronze Age finds have been recovered. Their chronological and spatial distribution are summarized in [Table 32.1](#).

The “prehistoric layer” at Aigeira

In 2007, quite unexpectedly, a new chapter of the earliest history of Aigeira was opened, when finds of later Middle Neolithic to Late Neolithic and Chalcolithic (Final Neolithic) date were found below a Late Classical to Hellenistic public building in the “Solon” area, situated on a lower terrace immediately north of the acropolis ([Fig. 32.2](#)).⁸ The new prehistoric finds were almost exclusively uncovered in an up to 0.6 m thick homogenous layer (hereafter “prehistoric layer”) under the foundations of the public building ([Fig. 32.3](#)). The “prehistoric layer” was examined and excavated between 2007 and 2011 in a few trenches only to test its extent, depth and content. The study of the abundant newly discovered finds is still in an initial stage, with conservation and cleaning of the heavy encrustations from the pottery being indispensable prior to its systematic analysis and publication, therefore all observations made here must remain preliminary.

A first inspection and classification indicates that the “prehistoric layer” contains mainly Neolithic and significantly less Chalcolithic pottery, whereas finds of Late Bronze Age or later date are exceptionally rare and most likely intrusive. The almost complete absence of any finds belonging to the period between the Chalcolithic and Late Classical times above the “prehistoric layer”, not only in the stratigraphic sequence of the Late Classical to Hellenistic building but also in top-soil layers and on the surface, which was surveyed prior to excavation,⁹ is rather strange for the following reasons: first, one would expect that some debris of the Late Bronze Age settlement and the Archaic and Classical

sanctuary on the acropolis would have slid down or been intentionally dumped, in either case deposited in the area of the lower terraces to the north. Second, the lower terraces to the north are thought to be part of the Archaic and Classical polis.¹⁰ Third, this area was agriculturally used for viniculture until the early 20th century.¹¹ Top soil layers clearly show the remains of the vine and sometimes even traces of ploughing, and it might therefore have been expected that at least some pre-Hellenistic pottery should have made its way to the surface. Future analysis including soil macro-morphological work will hopefully provide a better understanding of the site formation processes in this area. Checking of the pottery identifications for both the surface survey finds and the finds from the stratigraphic sequence on top of the “prehistoric layer” should show whether or not the much earlier finds recovered from the latter are in fact part of a “hidden landscape”.¹²

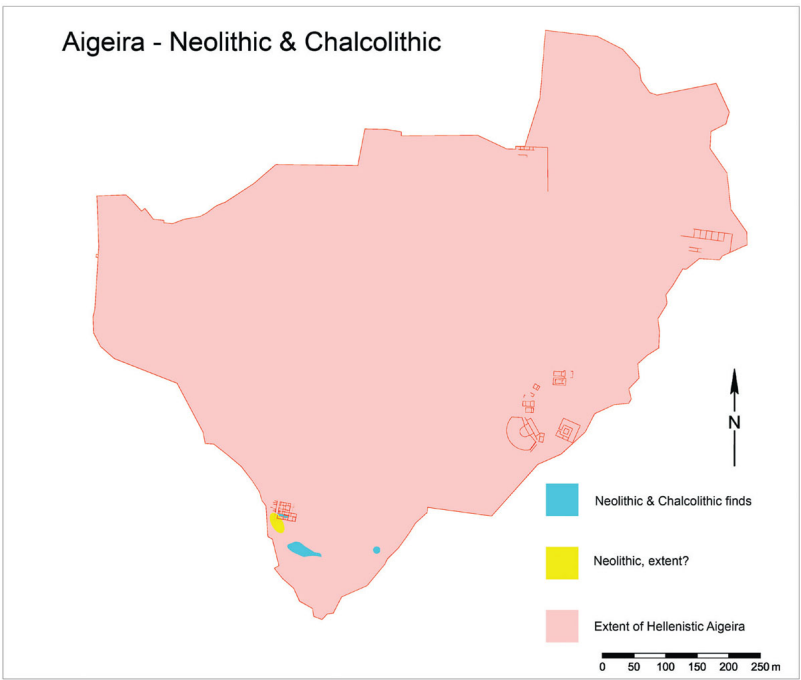


Figure 32.1. Plan of the Acropolis area showing the pre-Mycenaean

findspots (plan: ÖAW-ÖAI/H. Birk, W. Gauss).

Table 32.1. Distribution of pre-Mycenaean finds according to sherd counts presented by Alram-Stern (2006, 67–76 tables 1–4).

<i>Period</i>	<i>Published</i>	<i>Acropolis</i>	<i>Trench S 1976/1¹</i>	<i>Total</i>
Late Neolithic ²	3	3	0	3
Chalcolithic ³	146	190	47	237
EH I ⁴	79	114	1	115
EH III / MH ⁵		48	0	48
MH	35	11	0	11
Pre-Mycenaean	0	622	115	737
Pre-Mycenaean/Mycenaean	0	175	78	253
<i>Total</i>	<i>263</i>	<i>1163</i>	<i>241</i>	<i>1404</i>

- 1 Due to a general unification and systematization of trench and context labels throughout the excavations of Aigeira, trench S 1/1976 has been relabelled as trench S 1976/1.
- 2 Alram-Stern 2006, 23; 53 nos 1, 7–8; 47.
- 3 Alram-Stern 2006, 23; 5–60 nos 2–6, 9–149; 47; Alram-Stern 2007b.
- 4 Alram-Stern 2006, 23; 60–4 nos 150–228; 47.
- 5 Alram-Stern 2006, 39; 64–6 nos 229–63; 47; see also Alram-Stern 2010 for a synthesis on Aigeira at the beginning of the Middle Bronze Age.

Thus far, no Neolithic or Chalcolithic architectural remains or pits have been identified, but the rather soft bedrock that constitutes sterile here shows indications of artificial trimming that could well be associated with the earliest habitation; further research is certainly needed to verify this hypothesis.



Figure 32.2. View from the Acropolis to the “Solon” excavation area (photo: ÖAW-ÖAI/G. Ladstätter).



Figure 32.3. Earth profile (balk) in the “Solon” area showing the dark “prehistoric layer” into which the foundations of the public building of historic times were inserted (photo: ÖAW-ÖAI/G. Ladstätter).

The extent of the “prehistoric layer” within the excavated public building can only be roughly estimated, but is expected to cover at least 150 sq m. Excavations also showed that the “prehistoric layer” within the limits of the building fades out towards the north and rises towards the south (towards the acropolis). It may therefore be securely assumed that future excavations may uncover even more substantial prehistoric remains, particularly if extended towards the south.

The quantity of finds attributed to the very broad category “pre-Mycenaean” is surprisingly high, particularly in view of the limited areas excavated thus far.¹³ This is also illustrated in [Table 32.2](#), where the number of pre-Mycenaean sherds (including the category pre-Mycenaean/Mycenaean) is broken down according to the size of the excavated areas.¹⁴

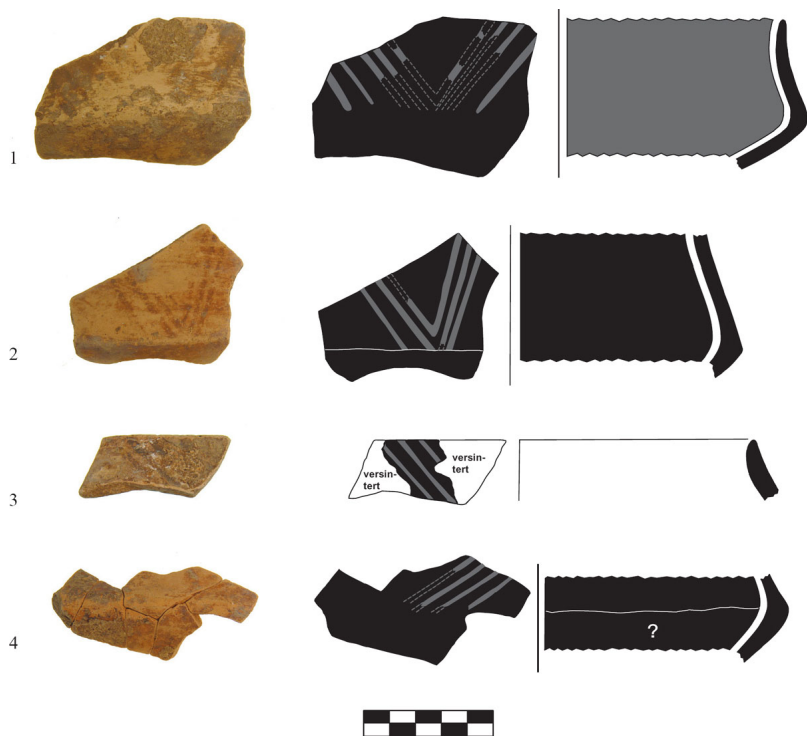


Figure 32.4. Dark on dark pattern-painted pottery (photos and drawings: ÖAW-ÖAI/W. Gauss).

Table 32.2. Distribution of prehistoric finds in sherd count and in relation to the excavated areas.

Excavation area	Pre-Mycenaean sherds	Approximate area of excavation (m ²)	Sherds/m ²
Acropolis	1163	ca. 705	1.64
Trench S 1976/1	241	ca. 50	4.82
"Solon"	2900	ca. 820 (entire excavation area)	3.53
		ca. 150 (assumed area of "prehistoric layer")	19.3

To judge from a first classification of pottery, which is unfortunately often heavily encrusted, a very large to predominant portion is either solidly painted or decorated with patterns in a dark paint of matt to dull appearance, the latter mostly applied over a solidly-painted surface, likewise dark in colour and matt to dull in character.¹⁵ Further investigations are necessary to check if this solid paint was applied before pattern-painting or actually over the paint, a technique found also at Lerna and other sites.¹⁶

The fabric of the solid and pattern-painted pottery is fine to medium fine of a light buff to buff colour with only few visible inclusions. In general, the fabric seems very similar to the one used in later periods for fine-/tableware pottery.¹⁷

The patterns consist mainly of simple geometric motives, particularly multiple triangles or opposing diagonals (Fig. 32.4, 1–418). The best parallels for the pattern-painted pottery have thus far been found at Lerna, where a number of pattern-painted “Urf”¹⁹ bowls and carinated bowls show a similar decoration in terms of patterns.²⁰ Interestingly at Lerna, the carination seems to be commonly found on the lower part of the body and less obvious than on the illustrated examples from Aigeira. Most common shapes in both categories are carinated and shallow open vessels, presumably bowls on a high pedestal foot (Figs 32.4 and 32.5, 1–321).²² A Middle Neolithic date for pottery of this kind is most likely, judging from comparanda recovered at the Franchthi cave and Lerna; further research and future excavations may even allow a more detailed chronological attribution.

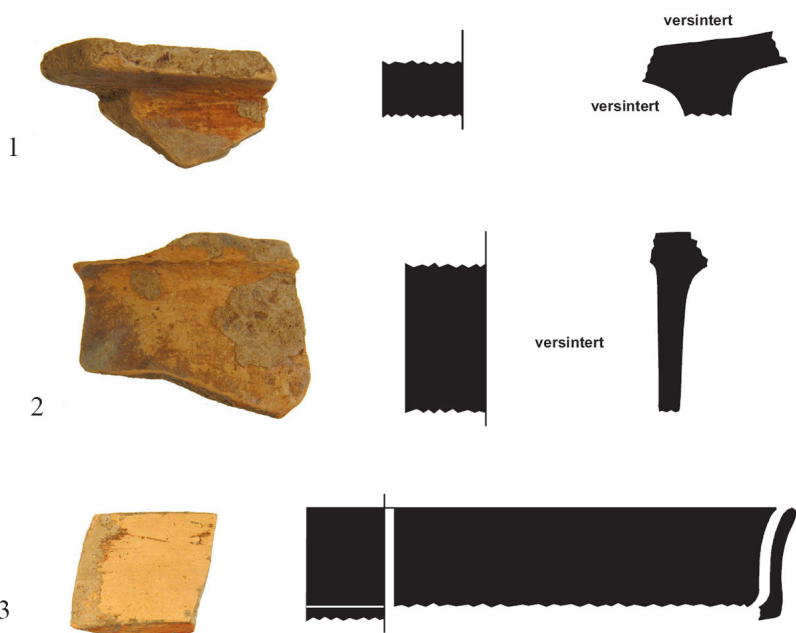


Figure 32.5. Pedestal bowls (photos and drawings: ÖAW-ÖAI/W. Gauss).



Figure 32.6. Dark on light pattern-painted pottery (photos and drawings: ÖAW-ÖAI/W. Gauss).

Only a few fragments of dark-on-light pattern-painted pottery have thus far been identified, some of which could even be of an earlier date.²³ Interestingly, both examples illustrated here derive from closed shapes (Fig. 32.6, 1–224).

Incised pottery identifiable as Late Neolithic “Prosymna incised” ware is, as at other sites, exceptionally rare and presumably even imported, as the fabric differs from the ones of assumed local origin (Fig. 32.7, 1–225).²⁶

Chalcolithic pottery is noticeably less common. All the examples illustrated here were found in the same trench (Fig. 32.8, 1–527). It is clearly different from the earlier pottery in its shape and decoration. Its medium coarse to coarse dark fabric is also distinctively different from the earlier pottery and very similar to the pottery of this date found previously on the acropolis of Aigeira.²⁸ Most common are large bucket-shaped containers, often with plastic decoration with close parallels at a number of sites.²⁹



Figure 32.7. Incised pottery (“Prosymna incised ware”) and impressed pottery (photos and drawings: ÖAW-ÖAI/W. Gauss).

Conclusions

Even though systematic excavations of the “prehistoric layer” in the Solon area have not even started and the study of its pre-Mycenaean pottery is only in an initial stage, it is evident that the history of human occupation at Aigeira must have started already in Middle Neolithic times. Future excavations in the Solon area will hopefully reveal the local site formation processes and provide a stratigraphic sequence of Neolithic and Chalcolithic finds. Recovery of faunal and botanical materials will be indispensable for understanding the subsistence economy of the first Aigeiretans and the question of whether Aigeira was inhabited on a year-round or perhaps only seasonal basis,³⁰ and will also improve our understanding of the settlement’s absolute chronology.³¹

The new finds at Aigeira will likewise help us to better understand the chronological relationships between the pre-Mycenaean sites³² of Aigeira, Akrata/Krathion,³³ Derveni,³⁴

Kassaneva-Dervinou,³⁵ and Pheneos.³⁶ Thus far, the earliest remains have been found at nearby Akrata and date to Early Neolithic times,³⁷ whereas the two newly discovered sites at Derveni and Kassaneva-Dervinou have produced important Early Helladic II remains, a period thus far not attested at Aigeira.

Notes

1 I would like to express my thanks to the organizers for their invitation to participate in the conference and their support, and G. Ladstätter (Austrian Archaeological Institute at Athens) for entrusting me with the publication of the prehistoric finds from his excavations at Solon. E. Alram-Stern and T. Loughlin were kind enough to read and comment on the draft of the manuscript, all mistakes of course remain the author's. The work at Aigeira is funded by the Austrian Archaeological Institute (ÖAI) of the Austrian Academy of Sciences (ÖAW) and the Austrian Federal Ministry of Science, Research and Economy (BMWFW).

2 See <http://www.oelai.at/index.php/aigeira.html> (visited on 8.7.2014) for general information; for recent research in the theatre area see: Gauss *et al.* 2012; Gauss *et al.* 2013; Gauss *et al.* 2015.

3 See Alzinger *et al.* 1985 for the first substantial report on the early sanctuary at the acropolis. See also A. Mazarakis-Ainian who raises doubts on the existence of an early sanctuary at the acropolis (Mazarakis-Ainian 1997, 164–6, 323, 342).

4 See Alzinger *et al.* 1985 for general information on the Late Bronze Age acropolis. For detailed information on the LBA stratigraphy and finds see: Alram-Stern 2003a; Alram-Stern 2007a; Deger-Jalkotzy 2003 and also Mountjoy 1999, 399. Regarding the newly excavated part of the LBA fortification wall see: Gauss *et al.* 2013, 71–6.

5 Alram-Stern 2006, 19–21. Only a few pre-Mycenaean finds were thus far identified at the area of the so-called “Sattel” immediately south-east of the acropolis and the fortification wall (e.g. Gauss *et al.* 2013, 74 fig. 5, 3).

6 Deger-Jalkotzy 1977.

7 Alram-Stern 2003b; Alram-Stern 2006; Jung 2006, 43–5; Rutter 1990.

8 The building was excavated between 1997 and 2011 under the direction of G. Ladstätter (ÖAI-Athens). For reports on these excavations see the annual reports on the excavations: *Jahreshefte des Österreichischen Archäologischen Institutes in Wien* (ÖJh) 68 (1999) to ÖJh 77 (2008) and since 2008 <http://www.oelai.at/index.php/jahresberichte.html> (visited 20.4.2014).

9 For brief information on the survey activities in this area see Bammer 1991–2, 16–20. At that time, no prehistoric material was identified, but a rechecking of the surveyed material for prehistoric finds is necessary.

10 Concerning the Archaic and Classical polis of Aigeira see Morgan and Hall 2006, 479–80 (with further references).

11 The first plan of the site of Aigeira from 1916 shows in this area the symbol for viniculture (Walter 1916–17, 21–2 fig. 11); on the viniculture in Aigeira see also Bammer and Muss 2007.

12 Regarding the “hidden landscape” debate in survey archaeology see e.g. Bintliff *et al.* 1999; Bintliff *et al.* 2000a with further references.

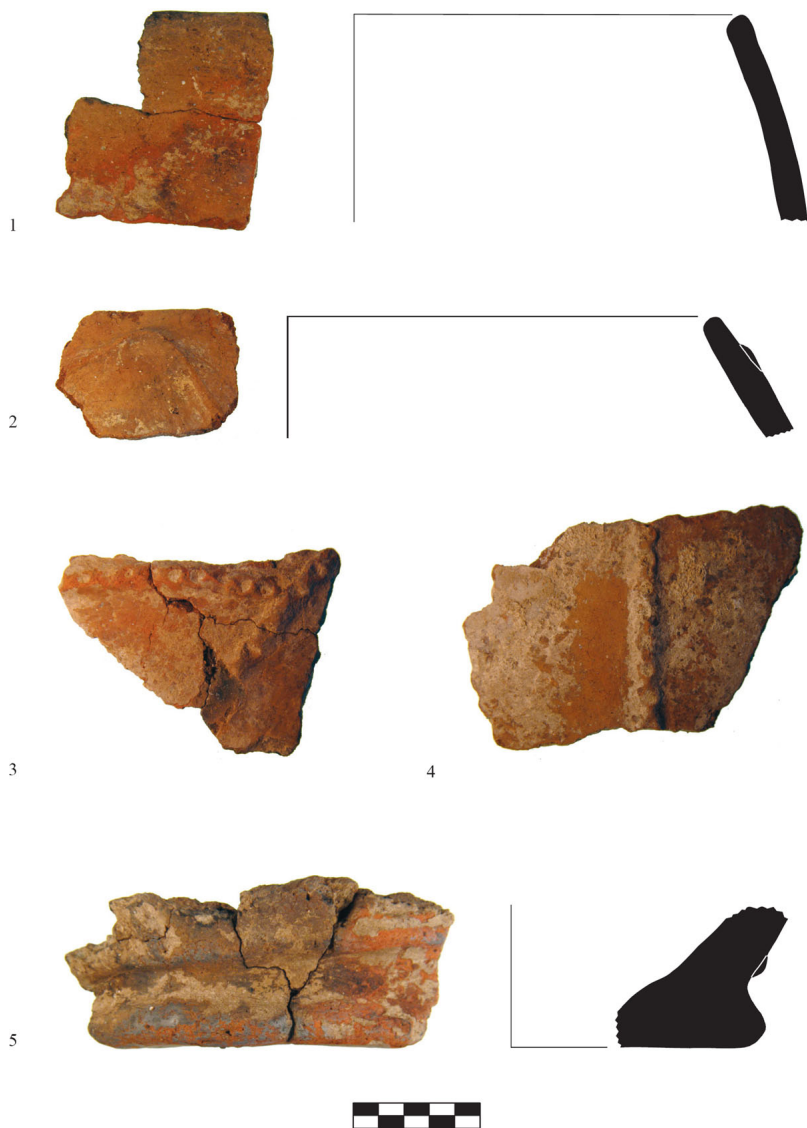


Figure 32.8. Pottery with plastic decoration (photos and drawings: ÖAW-ÖAI/W. Gauss).

13 The approximate excavation area referred to is the approximate total area excavated at the three sites.

14 Ideally the number of sherds should be set against the volume (cubic metres) of excavated sediment, but such calculation would

require intensive preparatory work, which has thus far not been done.

15 Cleaning is indispensable prior to the final sorting and classification of this material, as large parts of the interior and exterior surfaces are often encrusted with sintering that prevents a clear attribution even of such broadly defined categories as pattern-painted, solidly-painted or unpainted.

16 Vitelli 2007, 94 (“overpainted technique”). This technique seems to have been used quite frequently at Lerna, whereas only a few sherds are known from the Franchthi cave (Vitelli 2007, 105–6; Vitelli 1993, 191, 195). At Franchthi the overpainting seems to be limited with one exception to the early pattern-painted “Urf” decoration of phases Int 1/2, FCP 2.1 and FCP 2.2 (Vitelli 1993, 191 and note 5; 195). W. Phelps mentions that overpainting is also common at the sites of Asea and Ayioryitika (Phelps 2004, 57, [figs 13.1](#), 10–11, 69, 32, 73, 4 [all Ayioryitika]).

17 A systematic macroscopic classification and petrographic study of the newly found pottery has not yet been undertaken. For a first preliminary description of this fabric see Gauss 2009, 165 and fig. 7. R. Sauer did analyse (petrography and heavy mineral analysis) some of the finds from the acropolis (Sauer 2006).

18 [Fig. 32.4](#). 1: FL 50/011W-0009; 2: FL 51/010O-007; 3: FL 57/002N-001; 4: FL 51/010O-006. See also Vitelli 2007, 105–6 on the pattern-painted “Urf” pottery from Lerna, and Vitelli 1993, 189–97 for the Franchthi Cave.

19 For the definition of “Urf” see Vitelli 2007, 5 note 8; 91–106.

20 Vitelli 2007, 305 fig. 60a [II.J.B], 309 fig. 62g [II.J.F], 313 fig. 64a [II.BE.A]; for the approximate correlation of Lerna and Franchthi see Vitelli 2007, 130 tab. 9.1.

21 [Fig. 32.5](#), 1: FL 51/010O-009; 2: FL 51/009O-004; 3: FL 62/006-002.

22 Similar distinct carinations as those illustrated from Aigeira seem to characterise the pottery of FCP 2.4 (e.g. Vitelli 1993, figs 58–9; 64–5). The pedestals at Aigeira are rather tall, cylindrical to cone-shaped and thus resemble bases found at Franchthi in FCP 2.3 and later phases (e.g. Vitelli 1993, figs 47m–o, 53c, 59h, 61f–g, 64g).

23 The multiple triangles or opposed diagonals of FL 51/010O-009 ([Fig. 32.5, 1](#)) resemble to a certain extent a Franchthi cave FCP 1

fragment (Vitelli 1993, 340 fig. 12c), a Middle Neolithic Urfirnis one from Ayioryitika (Petrakis 2002, fig. 29, 113) and pattern-painted “Urf” collared jars at Lerna (Vitelli 2007, 295 fig. 55g [II.J.A]; 297 figs 56f [II.BE.D], g [II.BE.D], k [II and III]). For the approximate correlation of Lerna and Franchthi see Vitelli 2007, 130 tab. 9.1. Regarding the patterns see also Renard 1989, pl. 29, 1.2.10

24 Fig. 32.6, 1: FL 61/006O-001; 2: FL 57/002S-005.

25 Fig. 32.7, 1: FL 50/010O-001; 2: FL 52/007-001.

26 Alram-Stern (ed.) 1996, 145 (with references); Blegen 1937, 372–3, 375; figs 627, 633; Hauptmann 1981, 68; A. Sampson and S. Katsarou contribution in Alram-Stern (ed.) 1996, 499–500 n. 5–6; Sampson 1997, 236–53, who notes that incised pottery was also found at the Neolithic site of Akrata/Krathion (p. 246); Phelps 2004, 105–6, fig. 47, 1–20; Zachos 2008, 20, fig. 33, pl. 17a.

27 Fig. 32.8, 1: FL 58/006NW-003; 2: FL 58-006NW-004; 3: FL 58-006NW-007; 4: FL 58-006NW-001; 5: FL 58/006NW-010.

28 Alram-Stern 2006, pls 10, 128–12, 149. IV, 136–9. Some Chalcolithic samples from the acropolis were petrographically analysed (Sauer 2006). Regarding the macroscopic classification see above note 24.

29 See also similarly decorated examples from Ayioryitika attributed to the Late Neolithic period (Petrakis 2002, fig. 32, 137), from Ay. Demetrios period I (Zachos 2008, fig. 26, pl. 12a, pl. 13 no. 682/81), from Lerna (Vitelli 2007, 364 and fig. 90 [a and b II unphased]) and from Kastria (Sampson 1997, 225–32).

30 Alram-Stern 2006, 48 and n. 271.

31 Absolute dates are thus far only available for the LBA destruction of the settlement at the acropolis (Stadler *et al.* 2006, 205–7).

32 For general remarks on early settlements in Southern Greece see Alram-Stern 2005.

33 Phelps 2004, 12.

34 Sarri 2013, 465–8.

35 Alram-Stern 2006, 48 n. 271; Colaïanni *et al.* 2012; Colaïanni *et al.* 2016; Colaïanni and Fiorentino 2016.

36 Kissas *et al.* 2014.

37 Phelps 2004, 12. Regarding the relation of Aigeira to the Akrata settlement, see also Alram-Stern 2006, 47–52.

Stones, pots ... and now ornaments: Revisiting the Middle–Late Neolithic and the Late–Final Neolithic transitions at Franchthi

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Introduction

The causes and nature of the transition from the Late to the Final Neolithic (LN, FN)² in Southern Greece, around 4500 cal. BC, have been a matter of debate since C. Renfrew coined the term “Final Neolithic”.³ A large part of the debate centres around the role of pastoralism⁴ and the “secondary products revolution”,⁵ but cultural changes or demic replacement are hardly if ever considered.

The on-going study of the Franchthi ornaments brings new and unexpected perspectives to these issues, provided one takes also into account the Middle (MN) to Late Neolithic transition. As with settlement patterns, pottery, stone and bone tools, sharp breaks are documented in the ornamental assemblages between the MN and the LN on the one hand, and the LN and the FN on the other. The differences are such for both transitions that cultural continuity, even in the context of a new socio-economic organisation, seems difficult to defend: LN ornamental assemblages are conceptually, visually and technically different from earlier and later assemblages. On the other hand, the FN

assemblages share many concepts with the earlier EN and MN assemblages, pointing to the LN as “intrusive” in an otherwise continuous sequence of development. This leads us to reconsider the old hypotheses of demic ruptures at the dawn of the LN, supported by parallels between the ceramics and ornaments from Franchthi and from Northern Greece. Conversely, the LN/FN transition may signal the return to Franchthi of groups descending from its former, EN–MN, inhabitants.

The context

The MN/LN transition at Franchthi, dated to *ca.* 5500 cal BC, is characterised, as everywhere else in Greece, by a sharp break in ceramic traditions. At the beginning of the Late Neolithic (phase FCP 3), the very distinctive “Urf” (akin to the Peloponnesian “urfirnis”) is replaced by carinated “low lime burnished” (akin to the “black burnished” of Central Greece and Thessaly)” as well as “polychrome painted” wares, and later by “lime plus iron”, akin to matt-painted wares.⁶ The status and mode of occupation of the site change in parallel, with the abandonment of the extensive open-air settlement on the Paralia. The Late Neolithic occupation is restricted to the cave itself, and seems to have mostly been of a ritual order.⁷

K. Vitelli discussed at length the striking contrasts between MN and LN settlement patterns and ceramic productions, and what she sees as the “breaking down of the Middle Neolithic alliance” in the Peloponnese.⁸ She concluded in favour of a socio-economic transformation: the regulation of conflicts within and between groups would have ceased to operate successfully. The former MN groups would have split, dispersed into the hills, chosen a new way of life and produced new ceramic styles.⁹ She did not discuss the LN/FN transition, around 4500 cal BC, in similar detail, but again suggests that socio-economic transformations, through more interaction and exchange, would explain the new FN settlement patterns with the reoccupation of the Paralia. In turn, a more

sedentary life and new activities would have led to the adoption of the distinctive FN wares, such as the crusted and patterned burnished wares.¹⁰

The flaked stone assemblages show parallel changes: the MN/LN transition is characterised by a transformation in the techniques of preparation of the pressure-flaked obsidian blades and bladelets, associated with the replacement of transverse arrowheads by pointed arrowheads.¹¹ The transformations between LN and FN lithics are perhaps less striking, but they are also significant and embrace new techniques of retouch (parallel pressure retouch on arrowheads) and new tool types, such as denticulated blades and the characteristic triangular foliates. Unlike K. Vitelli, I had not discussed these transitions in terms of cultural continuity or discontinuity. The hypothesis of production in the hands of itinerant craftsmen, who were not members of the local community, rendered the discussion irrelevant at Franchthi itself. However, from a more general viewpoint, I also considered that the MN/LN transformations in lithic assemblages could be explained in socio-economic terms.¹²

The diachronic changes observed at Franchthi can indeed be traced all over Greece. Carinated black-burnished wares and matt-painted brown-on-brown wares spread all over continental Greece at the beginning of Late Neolithic I, forming a common background to the various idiosyncratic regional styles that emerged after the traditional Middle Neolithic ceramic productions – such as Sesklo, Chaironeia, Lianokladi, Paradimi – had disappeared.¹³

Everywhere also, disruptions in settlement patterns can be observed, with settlements abandoned, new settlements created, the development of very large “flat-sites”, a colonisation of the small Aegean islands and a marked rise in the use of caves.¹⁴ These transformations, associated with what he considered as “destruction levels” – at Servia, Tsangli and Sesklo for instance – led V. Milojević to view the MN/LN transition as the result of

migrations from Anatolia to the Balkans and to Greece.¹⁵ Weinberg concurred on the arrival of new populations, but, contrary to V. Miložčić, viewed their penetration as “peaceful infiltration”.¹⁶ D. Theocharis considered the question unsolved, but underlined the parallelism of the transformations in Greece and Anatolia. Later on, with the demise of the migrationist paradigm,¹⁷ the MN/LN transition was re-interpreted in terms of a local evolution. For instance, Demoule *et al.*¹⁸ defined a transitional MN/LN interphase at Platia Magoula Zarkou, called the Zarko phase. Echoing the “collapse of the Urfirnis alliance”, this phase can be characterised by “a destandardisation of traditional techniques and the exploration of new ones, as though the previous template had been disorganised and a new one was being slowly and rather haphazardly established.”¹⁹

In turn, the LN/FN transition is characterised, from Thessaly to the Peloponnese, by the development of crusted and patterned burnished wares²⁰ and by an even more striking reorganisation of settlement patterns. In Thessaly, the FN is characterised by a dramatic decrease in the number of settlements.²¹ Conversely in Central and Southern Greece, small rural settlements spread over marginal areas and hills, while the use of caves increased.²² To my knowledge, these changes have never been interpreted in terms of demic replacement. Following the perceptive lead of C. Renfrew,²³ these transformations have mostly been analysed in economic terms.²⁴

These socio-economic interpretations of the MN/LN and LN/FN transitions raise a number of problems. In particular, they do not answer the question of why social or economic transformations would induce major transformations in the technical and stylistic domains as well, why traditional pottery shapes, firing techniques and decorative techniques for instance, were abandoned. Nor do they explain why the new categories of wares, such as the LN black-burnished and matt-painted or the FN crusted wares and patterned burnished, rapidly spread over vast areas previously

characterised by very distinctive ceramic traditions. They do not explain either the transformation in obsidian blade production or the shift from transverse to pointed arrowheads. In addition, as I will now show, the break concerns not only pottery, lithics or bone tools. At Franchthi at least, it also concerns the ornaments, and, even if the evidence is presently restricted to a single site, it sheds new light on the problem of cultural continuity over these two transitions.

The Franchthi ornaments

The Franchthi ornaments were studied first by P. Schaeffer, then by M. Miller for her doctoral dissertation. Unfortunately, these studies have remained largely unpublished.²⁵ Both studies concentrated on the catalogued artefacts, which are mostly restricted to the Neolithic period. When I became entrusted with the publication of the Palaeolithic and Mesolithic ornaments, and later of the Neolithic ornaments, the first step was to sort, with my collaborators,²⁶ hundreds of mixed bags of land snails and seashells. This re-sorting radically changed the picture of the Franchthi ornaments, including for the Neolithic, by showing that in most periods perforated shells were the dominant categories.

For the sake of brevity, I will not discuss here the very definition of an “ornament”, which is, as I discovered, rather imprecise and problematic. I will thus concentrate here on beads, pendants and perforated shells. Over 1400 Neolithic ornaments were catalogued during the excavation, but the number has more than tripled with our new investigation. Ornaments were found in all trenches, Paralia and cave alike, and all occupational phases. We shall here concentrate on trenches F/A North (FAN) and F/A South (FAS), the only two trenches where Late Neolithic deposits have been found *in situ*. FAS was entirely water-sieved down to a mesh of 1.8 mm, while LN deposits were not water-sieved in FAN. As a consequence, most of the smaller beads, characteristic of the period, were lost in FAN.

Middle Neolithic ornaments

Middle Neolithic ornaments at Franchthi show a clear continuity in the conception of ornaments with the Early Neolithic.²⁷ The major difference pertains to the production of *Cerastoderma glaucum* disc beads, which decreased considerably during the Middle Neolithic. Otherwise, the range and variety are very comparable. The MN ornamental assemblages (geometric beads and pendants, ear-plugs, annulets, perforated sea-shells, etc.) amount to slightly less than 450 pieces, to which a similar number of unperforated specimens of the same ornamental species, clearly selected for their large size and good state of preservation, may be added. They were found in all trenches containing MN deposits, in the cave itself and on the Paralia.²⁸ The presence of blanks and unfinished pieces shows that some ornaments at least were locally manufactured, and use-wear traces show that many have been worn. There are some differences between the earlier and the later phases of the Middle Neolithic, but they will not be addressed here.

The first characteristic of the Middle Neolithic ornaments is the numerical dominance of perforated shells, *Columbella rustica*, *Cyclope neritea* and, to a lesser extent, *Cerastoderma glaucum* and *Luria lurida*. Interestingly, two of these species, *Cyclope* and *Columbella*, are also the dominant species in the Palaeolithic and Mesolithic, although the techniques of perforation differ. Naturally perforated shells are present in a smaller proportion: *Antalis* sp. (*Dentalium* sp.), sea-worn *Cerithium vulgatum* and *Hexaplex trunculus*.²⁹

Alongside perforated shells, geometric beads and pendants are found in approximately equal proportion, together with rarer V-buttons, “ear-plugs”, “anthropomorphic pendants”, “zoomorphic masks”, annulets and uniquely shaped ornaments. They are mostly made of stone, especially steatite, but also serpentinite, marble, limestone, chlorite and chrysocolle, as well as shell (*Spondylus gaederopus*, *Pinna* sp.) and baked clay.

Middle Neolithic beads and pendants are characterised by the variety in shapes and dimensions – no two beads and pendants are exactly alike – the variety in colours – light green, dark green, black, white, brown, red, yellow – the variety in texture – linked to the raw material and degree of polishing, and, finally, the presence of unique, elaborate pieces. Most types are found in other regions of Greece at the same period, and the absence of standardisation has also been noted for Thessaly.³⁰

For both perforated shells and geometric beads and pendants, identification of the natural taxon or of the raw material is easy, and rarely requires microscopic examination. The raw material and its origin are part of the visual code, as much as the shape and colour.³¹

Figure 33.1 illustrates a variety of MN ornaments from the different trenches of the cave and Paralía. Figure 33.2 is restricted to trenches FAN and FAS, to allow meaningful comparisons with the following phases. It is complete, except for additional perforated *Columbella rustica*, *Cyclope neritea* and *Cerastoderma glaucum*.³²

Late Neolithic ornaments

Late Neolithic ornaments, taken as a whole, present a marked contrast (Fig. 33.3). Despite the fact that Late Neolithic deposits are restricted to trenches FAS and FAN and the lack of water-sieving in FAN, they are abundant: ca. 300 specimens. The typological range is much narrower: discoid beads and short cylindrical beads heavily dominate. There are almost no pendants (2%), none of the unique and fancy ornaments that were present in the Early and Middle Neolithic. Perforated shells (*Cyclope*, *Columbella*) and *Antalis* (*Dentalium*) are also rare, and their percentage, on the order of 7%, is well within the percentage of contaminant Middle Neolithic “Urf” sherds.³³ Their relative abundance in the lower LN units, where the percentage of “Urf” sherds varies from 20 to 50%, suggests that they too are intrusive.

There is no definite evidence in the LN that the beads were produced *in situ*, but analyses of the raw materials with a portable XRF spectrometer show that the composition of the steatites and serpentinites are compatible with a local origin. The beads themselves are far more standardised than in the MN, as also noted for the Late Neolithic in Thessaly.³⁴ Their colours are also uniform: the large variety that was sought in the Middle Neolithic, including the bright green of the steatites, is now replaced by monotonous series of black and white or light beige beads³⁵. The beads are of very small size, and the smallest, the “tiny black” for instance, can only be produced in series, strung together on a thin reed or a string.³⁶ Grinding them down to a diameter of 2–2.4 mm requires skills and practice, and their very small size may well have been part of the value attached to these beads.

Despite the homogeneity in shape and colour, the range of raw materials remains very diversified, especially in the later LN sub-phases (Fig. 33.4). It includes unfired and fired steatites,³⁷ serpentinite, marble, limestone, marls, baked clay, *Spondylus gaederopus*, *Cerastoderma glaucum*, *Pinna* sp., *Conus mediterraneus*. In most cases, however, the identification of the raw material is almost impossible with the naked eye, and requires 30 to 40X magnification. The raw material and its provenience, either from the sea or the earth, are no longer part of the visual code. The latter is restricted to size and colour, and the colour itself can even be artificially modified. A large series of black or green steatite beads have been transformed under high heat (on the order of 1000° C) into beige/white – and much harder – enstatite. In contrast, almost half of the *Spondylus* beads have been turned dark brown or black by heating under a reduced atmosphere.³⁸

These general characteristics are consistent throughout the early Late Neolithic (Neolithic pottery FCP 3 and lithic phase III, ca. 5500–5300 cal BC) and the three sub-phases of the later Late Neolithic (Neolithic pottery FCP 4 and lithic phase IV, beginning around 5300 cal BC), although some minor variations can be

documented. Thus, the striking homogeneity of the Late Neolithic ornaments holds true for several centuries, and cannot be the result of a single necklace or two deposited in the cave.



Figure 33.1. Sample of Middle Neolithic ornaments from various Cave and Paralia trenches. Fifth row: *Columbella rustica*. Sixth row: *Cyclope neritea*. Bottom row, from left to right: *Antalis* sp. (*Dentalium*), *Phorcus marginatus* (*Monodonta*), *Cerithium vulgatum*, *Luria lurida* and *Cerastoderma glaucum*.

Final Neolithic ornaments

With about 75 pieces altogether, plus a “necklace” of sea worn *Cerithium vulgatum* fragments, Final Neolithic ornaments are far less abundant than in any other period (Fig. 33.5). The quantitative diminution is significant since Final Neolithic deposits were excavated both in the cave (trenches FAS and FAN) and on the Paralia (trenches L5 and L5NE). This small assemblage shows, nevertheless, a drastic conceptual change *vis-à-vis* the Late Neolithic: pendants and perforated shells again dominate, natural colours, textures and morphological diversity are again valued. The raw materials and their origin can be identified with the naked eye, and are again part of the visual code. Final Neolithic ornaments are, in all respects, very close in conception to Middle Neolithic ones. However, the possibility that all these ornaments would represent Middle Neolithic contaminations can be excluded: the majority come from trenches FAN and FAS, overlying the Late Neolithic levels, and both the pottery and lithic assemblage show no evidence of Middle Neolithic contamination. Some contamination in trenches L5 and L5NE is nevertheless possible, and I suspect that the three fired steatite beads and “tiny blacks” from FAN and FAS, which could point at some continuity with the Late Neolithic, are contaminant since they were found in units just overlying the Late Neolithic deposits.

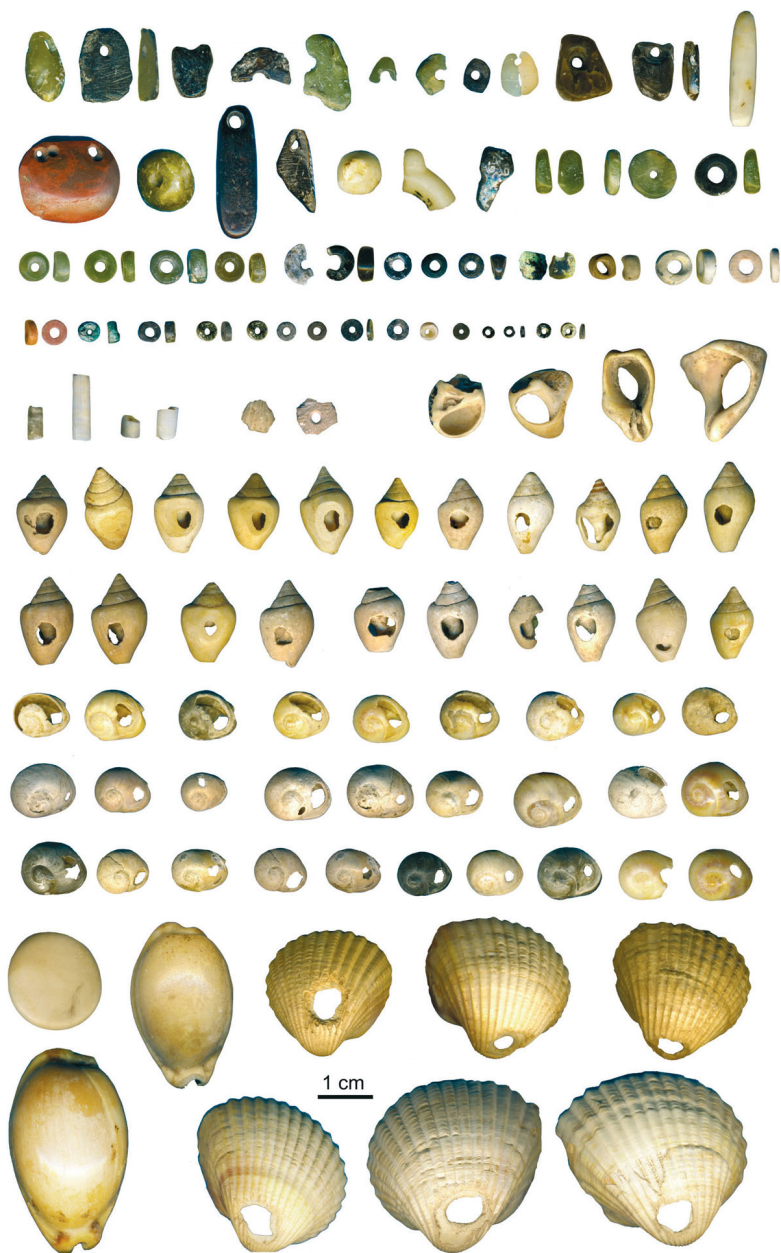


Figure 33.2. Middle Neolithic ornaments from trenches FAN and FAS. Perforated sea shells are underrepresented on this plate.



Figure 33.3. Representative sample of Late Neolithic ornaments from trenches FAN and FAS.

Conclusion

Two opposite conceptions of the ornaments are exemplified in the Neolithic sequence of Franchthi. The first conception embraces the Initial Neolithic, Early Neolithic, Middle Neolithic and Final Neolithic. It combines the natural shapes of perforated seashells with non-standardised pendants and beads, as well as a few exceptional specimens, such as anthropomorphic pendants, of especially high craftsmanship. It plays with the variety of shapes,

sizes, colours and textures. The second conception, restricted to the Late Neolithic, obliterates all natural shapes in favour of uniform, standardised discoid and cylindrical beads. Raw materials, whether stone, shell or clay, are completely transformed to the point of being impossible to identify with the naked eye. The range of colours is restricted to black and beige/white and, for perhaps half of the beads, the colours themselves are artificially manipulated.



Figure 33.4. Variety of raw materials in Late Neolithic beads from

FAN and FAS.



Figure 33.5. Final Neolithic ornaments from trenches FAN, FAS, L5 and L5NE. Sea worn Cerithium vulgatum are underrepresented.

Late Neolithic ornaments thus stand out as singular in an otherwise homogenous conception of ornaments. How can we explain this conceptual break?

1. A change in raw material availability can be excluded: whether or not the beads were locally made, all raw materials could be found locally in abundance.
2. Late Neolithic ornaments correspond to the period when the occupation of the cave appears to have been mainly of a ceremonial and ritual order.³⁹ They might thus represent ornaments conceived and deposited for ritual purposes, as opposed to accidentally discarded personal ornaments in the other phases of occupation. However, the high frequency of use-wear deformations and the fact that, according to K. Vitelli,⁴⁰ the cave was also occupied for ritual purposes during the FN, do not fit well with this hypothesis.
3. A similar shift from large ornaments to numerous small discoid beads has been observed around 5000 BC in Hungary. These small beads are almost exclusively found in female and child burials, and the authors suggest that the “expression of prestige”, formerly marked in male burials by large *Spondylus* ornaments, was now expressed by the wealth of female family members and descendants.⁴¹ In turn, prominent leaders were buried with status items such as mace-heads, boar tusks and pendants. Given the absence of burials at Franchthi (and their rarity in the Greek LN as a whole), a relation to gender is impossible to support or disprove. This model, in any case, leaves unsolved the question of the origin of such a conceptual and social change.
4. To understand the transformations in ornamental assemblages, a broader perspective might be required. These changes are, at Franchthi, concomitant with equally marked transformations in the pottery, bone tool and stone tool assemblages, which concern both techniques and style. This denotes a major cultural break, which, in terms of evolutionary

archaeology,⁴² is a clear case of discontinuous change, normally associated with demic replacement. All the available data indicate that the Late Neolithic groups at Franchthi had different technical, stylistic and symbolic traditions than the previous Middle Neolithic inhabitants. In addition, both the pottery and the ornaments- in particular the fired steatite beads- point to connections with Northern Greece.⁴³ We should thus consider the possibility that the Late Neolithic groups were not autochthonous to the Peloponnese (or to the Argolid), and that their arrival was responsible for the “collapse of the Urfinis alliance”.

I know, however, that no site in Northern Greece shows the restricted range of ornaments that Franchthi shows.⁴⁴ But statistically relevant comparisons are rendered impossible by two sampling biases. First, the area excavated at Franchthi for the LN is absolutely minute – less than 8 sq m on 0.65 to 0.80 m depth – when compared with rich LN sites such as Dimini, Dispilio, Makriyalos, Dikili Tash, Makri, *etc.* This can easily explain the absence at Franchthi of other characteristic LN types. Conversely, the systematic use of water-sieving down to a mesh of 1.8 mm has dramatically inflated the proportion of small beads compared to dry-sieved sites.⁴⁵ One should thus rely more on the common presence of highly elaborate types such as fired steatites or heated *Spondylus* beads than on the relative proportions of the different types of ornaments.

The contrast between Late and Final Neolithic ornaments is as strong as the contrast between Middle and Late Neolithic ones. However, while the MN/LN transition evokes the occupation of the cave by groups of a different – northern – tradition, to the contrary, the marked parallels between the Middle and Final Neolithic ornaments suggest the return to the site of groups descending from its former inhabitants. The conception of ornaments can indeed be shown to be far more resilient to change than, say, lithics or pottery and can certainly be perpetuated over

a millennium.⁴⁶ K. Vitelli suggested that the Middle Neolithic inhabitants of the cave had left to the hills to live a different – and much less visible – life at the end of the Middle Neolithic. What the ornaments suggest is that their descendants came back – sporadically – during the Final Neolithic, once Late Neolithic newcomers had themselves left the region or, rather, merged with autochthonous populations since some continuity can be observed in the ceramic production.⁴⁷ There is no need indeed to revive V. Milojčić's old model of “invasions”: historical Greece, with many interacting pastoralist and farming groups of different practices, languages and cultures, certainly provides a more fruitful model for a multicultural country, and one which may well fit with the later phases of the Neolithic if we start to look at it this way.

Notes

1 Research on the Franchthi ornaments was funded by a grant from the INSTAP (2006–2010), which is gratefully thanked, and by grant ANR-06-Blan-0273 from the French Agence Nationale de la Recherche (National Agency for Research).

2 In the chronological scheme used here, the Late Neolithic spans the mid-6th to mid-5th millennium (*ca.* 5500–4500 BC), and the Final Neolithic spans the mid-5th to mid-4th millennium. The Final Neolithic corresponds to the “Late Neolithic II” of Sampson (1989), Coleman (1992) or to the “Chalcolithic” (Aslanis 1992).

3 Renfrew 1972.

4 *e.g.* Branigan 1999; Cavanagh 1999; Halstead 1987; Halstead 2000; Halstead 2008; Johnson 1996a; Renfrew 1972; Renfrew 1973b; Sampson 1992; Sampson *et al.* 1999; van Andel and Runnels 1988.

5 Sherratt 1981.

6 Vitelli 1993; Vitelli 1999.

7 Vitelli 1999.

8 Vitelli 1999, 103.

9 Vitelli 1999, 99–101.

10 Vitelli 1999, 103.

11 Perlès 2004.

- 12 Perlès 2004, 170.
- 13 Andreou *et al.* 1996; Demoule *et al.* 1988; Papathanasopoulos (ed.) 1996; Theocharis 1973.
- 13 Cherry 1990; Broodbank 2000; Halstead 1984; Halstead 2000; Halstead 2008; Zachos 1999; Johnson and Perlès 2004; Mavridis this volume; Pappa and Besios 1999a; Sampson *et al.* 1999.
- 14 Milojčić 1949; Milojčić 1960.
- 15 Weinberg 1970, 600.
- 16 Theocharis 1973, 89–90.
- 17 Anthony 1990.
- 18 Demoule *et al.* 1988.
- 19 Demoule and Perlès 1993, 387.
- 20 Coleman 1992; Papathanasopoulos (ed.) 1996; Phelps 2004; Theocharis 1973; Zachos 2008.
- 21 Halstead 1984; Johnson and Perlès 2004.
- 22 Bintliff *et al.* 2006; Cavanagh *et al.* 2002; Johnson 1996a; Johnson 1996b; Runnels and van Andel 1987; Runnels *et al.* 1995; Sampson *et al.* 1999; Wickens 1986.
- 23 Renfrew 1972.
- 24 Cavanagh 1999; Demoule and Perlès 1993; Diamant 1974; Halstead 2007; Jacobsen 1984; Johnson 1996a; Sampson 1992; Sampson *et al.* 1999; Tomkins 2010; Wells *et al.* 1990; Wickens 1986; but see Halstead 2000; Halstead 2008; Tomkins 2010 for sociological interpretations.
- 25 But see Miller 1996; Miller 1997; Miller 2003; Perlès 2001.
- 26 M. Vanhaeren, S. Bonnardin, P. Pion, J. Beck, A. Blin.
- 27 This appears to be a general trend in Greece, see Kyparissi-Apostolika 2005.
- 28 They cannot, consequently, be considered as special ritual deposits linked with a sacred use of the cave for these periods, see Tomkins 2009.
- 29 A cluster of 66 sea worn *Cerithium vulgatum* was uncovered in the Final Neolithic of FAS, suggesting they were strung together. The use of unworked shells as ornaments is also mentioned at Makriyalos, Pappa and Veropoulidou 2011.
- 30 Kyparissi-Apostolika 2001.
- 31 See Bar-Yosef Mayer and Porat 2008 for the importance of the green colour.

- 32 Despite the fact that perforated *Cerastoderma glaucum* are commonly used as ornament, this is debatable at Franchthi where the perforations often lack use wear.
- 33 Vitelli 1999, tabs 1–8.
- 34 Kyparissi-Apostolika 2001.
- 35 See similar black and white necklaces from Dimini (Kyparissi-Apostolika 2001, pl. 42) and Dispilio (Chourmouziadis 2002, fig. 3).
- 36 Miller 2003, 374–5.
- 37 Miller 2003.
- 38 See Chapman *et al.* 2011 for intentional burning of *Spondylus* bracelets at Late Neolithic Dimini.
- 39 Vitelli 1999, 102.
- 40 Vitelli 1999.
- 41 Siklósi and Cesengeri 2011.
- 42 Roux and Courty 2013; Shennan, 2009.
- 43 Miller 2003; Vitelli 1999, 97.
- 44 *i.e.* Ifantidis 2004; Ifantidis 2011; Kyparissi-Apostolika 2001; Kyparissi-Apostolika 2011; Miller 2003; Nikolaidou 2003; Pappa and Veropoulidou 2011; Veropoulidou and Ifantidis 2004.
- 45 Since conditions of recovery are the same for the MN, LN and FN in trench FA, the contrasts between the three phases cannot be attributed to such sampling biases.
- 46 See Perlès 2013; Stiner 1999; Stiner *et al.* 2013 for Palaeolithic instances.
- 47 Vitelli 1999, 102.

The Early Helladic I cemetery at Kalyvia in Ancient Elis

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Introduction

The Peloponnese long lacked excavated Early Helladic (EH) I cemeteries. The situation changed in 1995 when three EH I pit graves were discovered in the area of an EH settlement near the sanctuary of Apollo Maleatas in Epidauros.² More recently, at Delpriza near Kranidi in the Argolid, an EH I cemetery with sub-rectangular pit graves lined with stone walls and signs of intensive Cycladic influence in the repertoire of the grave goods has been under investigation.³

In addition, at the site of Kalamaki in Western Achaea an EH I cemetery of rock-cut chamber tombs was uncovered in the last decade of the 20th century.⁴ Among them was a smaller rock-cut chamber tomb (Grave 9) with a deep vertical shaft-like *dromos*, circular in section, and a small oval burial chamber attached to one side of the shaft at the bottom.⁵ The burial chamber contained a pithos and a bowl with one horizontally-pierced lug. Scanty skeletal remains from the fill of the pithos presumably belonged to a child.

To these finds may now be added those that I present here. In 2004, during works for the erection of a new open air theatre,

directly to the east of the old archaeological museum within the ancient town of Elis (today within the compass of the modern village of Kalyvia), a total of 24 EH I graves – most of them rock-cut chamber tombs – were discovered in rescue excavations of the former 7th Ephorate of Prehistoric and Classical Antiquities in Olympia (Fig. 34.1).⁶ The author was the local representative of the Ephorate in the investigations. Five tombs unfortunately had been destroyed almost to their floor levels by the construction company's earth moving equipment prior to the excavations.

The cemetery of Kalyvia

Most of the graves had been used for multiple inhumations.⁷ The others were simple pit graves that had been employed for a single unfurnished inhumation and were usually located near the entrance of a chamber tomb.⁸ The latter consisted of a large burial chamber, a *stomion* and a *dromos*, carved in the hard, fossilised sand along the north-eastern circumference of a plateau below the old museum (Fig. 34.2).⁹

The use of this cemetery started, it seems, already in the Chalcolithic era.¹⁰ One grave was still in use during an early phase of EH II.

Many of the chamber tombs were furnished with a large niche at the back of the chamber and two smaller niches at the sides, all raised slightly above the level of the grave floor.¹¹ The rear niche provided enough space for one or two deceased to be retained in their original position of interment.¹² Remains of secondary burials were usually heaped in the lateral niches.¹³ However, in some cases there was also a primary burial in a lateral niche. The ceilings of the grave chambers were about 1.2 m above floor level and only slightly vaulted.¹⁴ The *stomion* at the entrance to the chambers, sometimes closed by an upright slab or built wall, had an opening that was large enough for an adult to enter by crawling on all fours.¹⁵



Figure 34.1. Kalyvia/Ancient Elis. Aerial view of the excavations in 2004 east of the old Archaeological Museum of Ancient Elis. View from north (photo by P. Konstantopoulos).



Figure 34.2. Kalyvia/Ancient Elis. Aerial view of Hellenistic building remains and the prehistoric rock cut chamber tombs east of the

Archaeological Museum of Ancient Elis. View from North (photo by Z. Leventouri).

The chamber tombs were arranged in two curving parallel rows (Figs 34.1–3).¹⁶ The graves of the outer row were situated at a distinctly lower level than the graves of the inner row.¹⁷ The chambers of the latter were approached by a *dromos*, horizontally cut through the soft rock.¹⁸ In contrast, those of the outer were reached through a deep, shaft-like vertical *dromos*.¹⁹ The plan and construction of the inner tombs were less uniform. Chambers varied widely in size and ground plans are irregular and differ considerably.²⁰ In contrast, tombs in the outer row were uniform in shape, with chambers mostly about the same size and sub-rectangular in plan. They usually had a large niche at the rear and two small niches at their flanks.²¹

Burial habits also differed between the two rows (Fig. 34.3). In the inner row, in many cases the entire floor of the chamber was covered with a thick layer of skeletal remains, and the corpses seem originally to have been laid one across the top of the other.²² The final burial, which, with one exception, was always laid in an extended position (Fig. 34.4), usually rested directly on top of the remains of earlier burials.²³ In exceptional cases, the final burial was placed on a large slab that rested directly on the remains of earlier deceased.²⁴ There is only one case of a burial in a contracted position among the graves of the inner row (Fig. 34.3). In grave 10, an individual oriented north–south lay in a contracted position on its left side, above and alongside skeletal remains of earlier burials, and near another individual, who was oriented east–west and interred in an extended position.

In the graves of the outer row, all the deceased, with one exception, lie on their sides in a contracted position (Figs 34.3, 34.5).²⁵ Usually in these graves the remains of two individuals were found, their bodies carefully placed on the floor of the chamber and/or in the rear niche of the tomb.²⁶ The “ἀνακομιδής”, i.e. piled up skeletal remains of earlier burials,

were always found in one or both of the lateral niches, properly separated from the better preserved skeleton or skeletons of final burials.²⁷ Finally, the only grave of the outer row that contained a burial in an extended position was Grave 12.²⁸ There two individuals lay side by side in the rear niche, one in an extended and the other in a contracted position.

The differences observed between the chamber tombs of the two rows in terms of tomb architecture and burial habits (Fig. 34.3) may be attributed to chronological differences between them.²⁹ Thus we see that the proposed earlier grave chambers of the inner row were irregularly shaped, *dromoi* were horizontal and, with one exception, the dead were interred only in an extended position. Later, grave plans of the outer tombs became more uniform, there were shaft like *dromoi* and, with one exception, the dead were buried only in a contracted position.

The grave goods seem to confirm the proposed chronological difference between the two chamber tomb zones. Most pottery vessels that accompanied burials had a dark, handmade fabric with surprisingly thin walls and dark brown, frequently spotted, burnished surfaces.³⁰ In some cases a dark reddish brown burnished slip was present. The most common shape was a small, globular jar with a high cylindrical – or even slightly funnel-shaped – neck and two vertically pierced lug handles on the shoulders.³¹ Some vessels resemble shapes from the EH I/EC I cemetery of Tsepi in Attica.³² Jugs with one vertical rim handle were usual both at Tsepi and Kalamaki,³³ and a miniature spherical pyxis from Kalyvia (Fig. 34.6) also finds parallels at Tsepi.³⁴

There are two double vases (Fig. 34.7).³⁵ Open shapes are represented by small hemispherical bowls with one vertical handle (Figs 34.8–9)³⁶ and a deeper bowl with a horizontal tubular lug at the rim (Fig. 34.10).³⁷

The decoration of some vases finds parallels in the Cycladic islands. One globular jar (Grave 7) bears incised herringbone

decoration on its neck (Fig. 34.11), as is known from many EC I vases of the Pelos-Group.³⁸ The same style of incision appears also on one of the bodies of a double vase from Grave 12 (Fig. 34.7).³⁹ Incised rows of pendant hatched triangles or zones of cross hatching⁴⁰ are also present on Cycladic vases of the later EC I–Kampos Group.⁴¹

The only EBA vessel with painted decoration from Kalyvia was a small EH II jug from a destroyed grave (Fig. 34.12). In shape and decoration, it finds its best parallel in a jug from the EC II early grave at Nero on Kouphonisi.⁴²

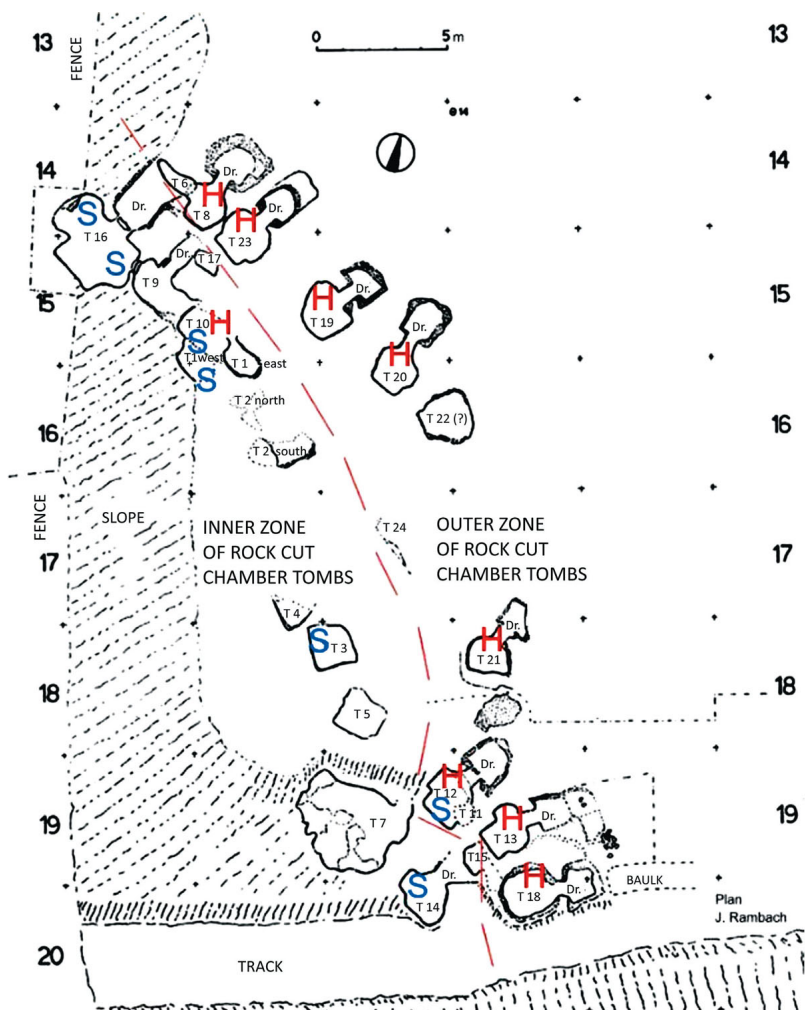


Figure 34.3. Kalyvia/Ancient Elis. Plan of the prehistoric cemetery with rock cut chamber tombs. S = Strecker = Skeletons laying on their back in extended position. H = Hocker = Skeletons laying on their sides in contracted position (drawing by J. Rambach).



Figure 34.4. Kalyvia/Ancient Elis. Grave 14 of the inner zone of chamber tombs. Last burial in extended position (photo by J. Rambach).



Figure 34.5. Kalyvia/Ancient Elis. Grave 20 of the outer zone of chamber tombs. Burials in contracted position (photo by J. Rambach).

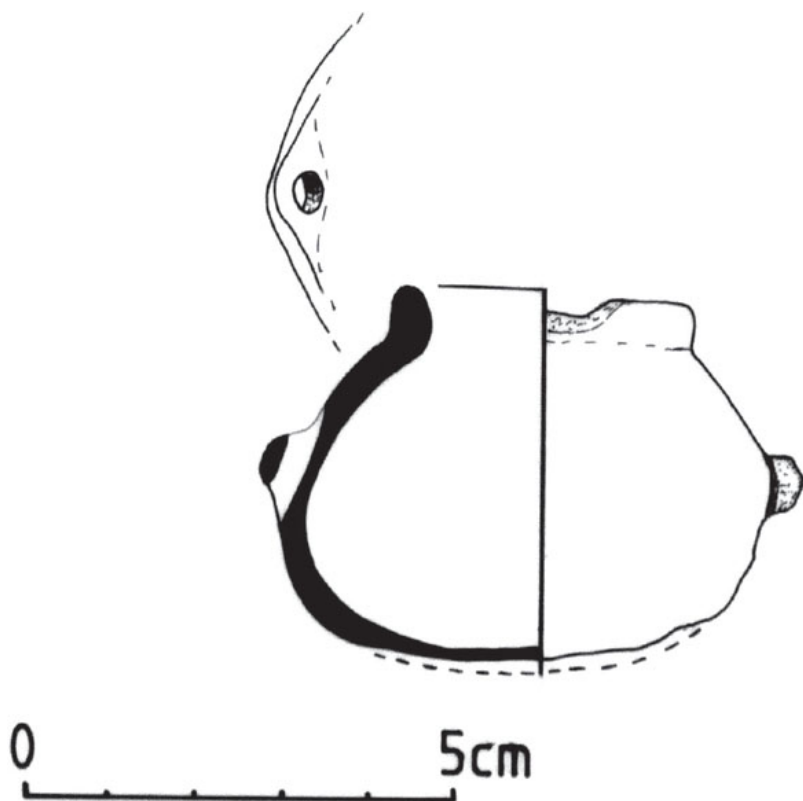


Figure 34.6. Kalyvia/Ancient Elis. Miniature spherical pyxis from Grave 1 West (drawing by J. Rambach).



Figure 34.7. Kalyvia/Ancient Elis. Double vase with incised decoration from Grave 12 (photo by J. Rambach).

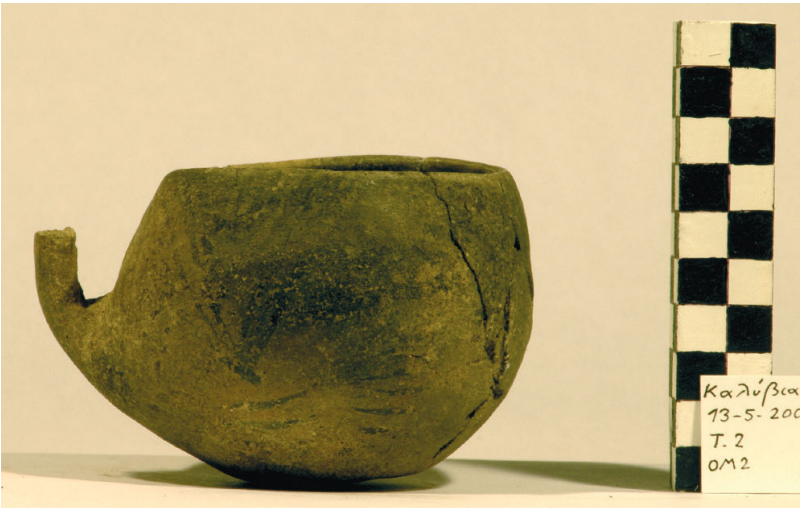


Figure 34.8. Kalyvia/Ancient Elis. One-handed bowl/cup with pattern burnished decoration from Grave 2 (photo by J. Rambach).



Figure 34.9. Kalyvia/Ancient Elis. One-handed bowl with pattern burnished decoration from Grave 14 (photo by J. Rambach).

That the cemetery of Kalyvia was open to influences from eastern regions, Attica and the Cyclades, is also evident from non-ceramic grave goods:

1. A bone palette from Grave 14 (Fig. 34.13),⁴³ is a shape very common at Tsepi and also known from EC I burial contexts.⁴⁴
2. A stone pendant in the shape of a boomerang from Grave 14⁴⁵ finds parallels in EH I/EC I contexts in Attica,⁴⁶ the Cyclades⁴⁷ and in Boeotia.⁴⁸
3. A stone pendant from Grave 4,⁴⁹ made of red semi-precious stone, is of a type very common in EC I graves.⁵⁰



Figure 34.10. Kalyvia/Ancient Elis. Deep bowl with horizontal tubular lug at rim. From destroyed grave (photo by J. Rambach).



Figure 34.11. Kalyvia/Ancient Elis. Globular jar with incised decoration from Grave 7 (photo by J. Rambach).



Figure 34.12. Kalyvia/Ancient Elis. Large fragment of Dark on Light painted jug of early EH II date. From destroyed grave (drawing by J. Rambach).



Figure 34.13. Kalyvia/Ancient Elis. Bone palette from Grave 14 (photo by J. Rambach).



Figure 34.14. Kalyvia/Ancient Elis. Globular jar with linear pattern burnished decoration on shoulder. From Grave 1 (photo by J. Rambach).



Figure 34.15. Kalyvia/Ancient Elis. Large fragment of globular jar with

pattern burnished decoration. From destroyed grave (photo by J. Rambach).



Figure 34.16. Kalyvia/Ancient Elis. Globular jar on low perforated conical ring base from Grave 3 (photo by J. Rambach).



Figure 34.17. Kalyvia/Ancient Elis. Chalcolithic bowl with line of red crusted paint at the rim. From Grave 15 (photo by J. Rambach).

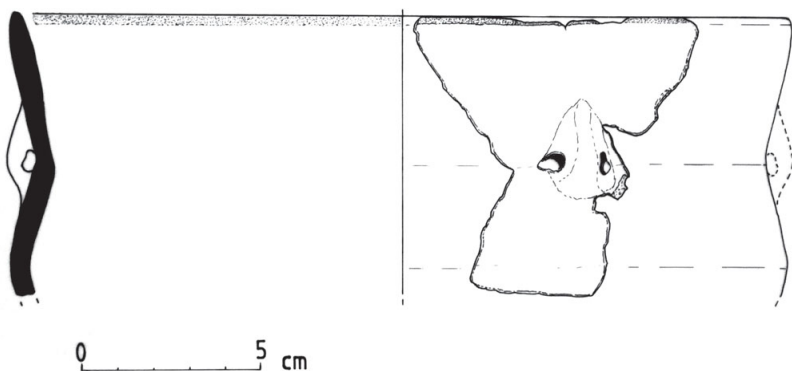


Figure 34.18. Kalyvia/Ancient Elis. Drawing of the Chalcolithic bowl from Grave 15 (drawing by J. Rambach).

Unexpected was the realisation that a number of pottery vessels at Kalyvia were decorated with pattern burnishing.⁵¹ This was a surprising discovery because pattern burnished decoration was previously documented either in EH I or EC I contexts.⁵² It is not even clear how common this kind of decoration was during the later stage of the Final Neolithic/Chalcolithic era, the so-called North Slope phase, in Southern and Central Mainland Greece.⁵³

The type of pattern burnished decoration with rather broad streaks attested on two one-handled bowls from Graves 2 and 14 (Figs 34.8–9) may derive from a mainland Chalcolithic tradition. Burnishing with groups of extremely thin, almost invisible, vertical lines, as found on a globular jar from Grave 1 at Kalyvia (Fig. 34.14),⁵⁴ and the use of plain burnished decoration fields alternating with fields that are hatched or even cross-hatched with groups of extremely fine burnished lines (Fig. 34.15) is, however, a style that seems to derive from some other tradition.

Pattern burnished decoration of this kind has, in fact, only been recorded from Final Neolithic contexts in Crete, as for example the Cave of Partira,⁵⁵ from Early Minoan ceramic assemblages, especially of the so called Pyrgos Style,⁵⁶ and from the Levina/Lebena EM I pattern burnished material.⁵⁷ Linear pattern burnished decoration of this kind also is not always easily

to recognise on EM I vases.⁵⁸

The globular jar with two vertically perforated lug handles on the shoulder and the funnel-shaped high neck (Fig. 34.14) also finds its best parallels among EM I vases.⁵⁹ In addition, a globular jar on a low perforated conical ring base from Grave 3 with, it seems, four lug handles (Fig. 34.16)⁶⁰ resembles closely in shape an EM I vessel from Lebena Tomb 2 Yerokambos.⁶¹

Fragments of a Chalcolithic bowl with at least one horizontally perforated vertical lug handle and a line of red crusted paint at the rim (Figs 34.17–8)⁶² were found in Grave 15, either the disturbed remains of a pit grave or of an early and smaller chamber tomb. Thus, the burial ground of Kalyvia was apparently used already from the Chalcolithic era for inhumations, or at least a Chalcolithic settlement had existed somewhere in the immediate vicinity.

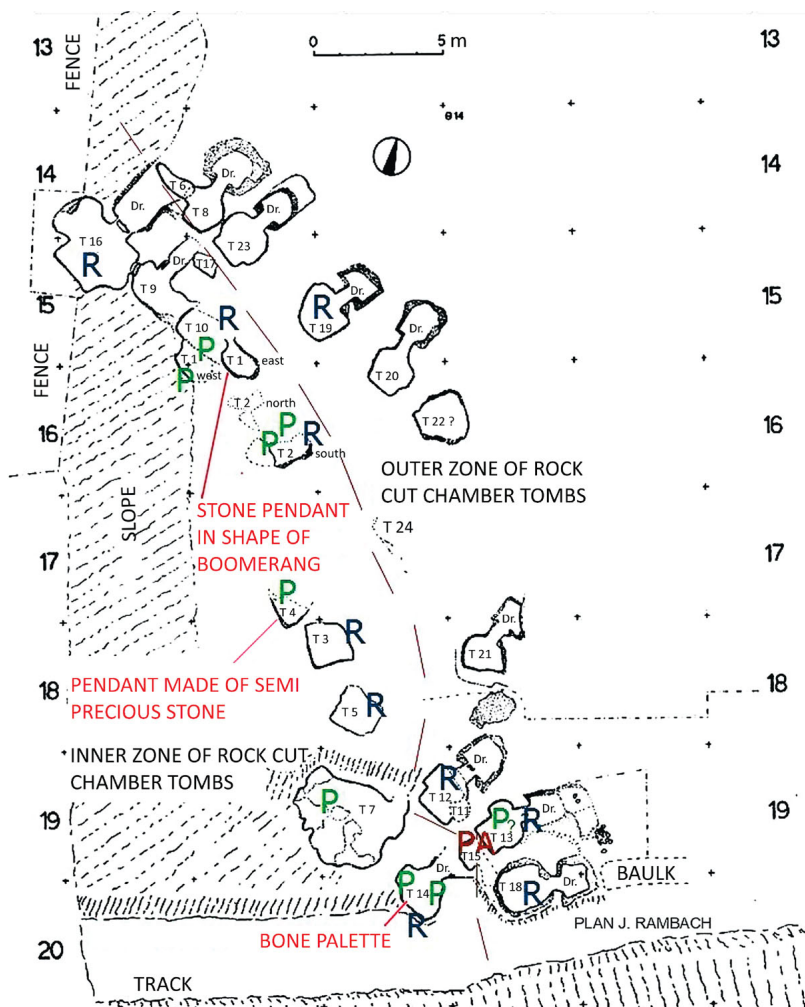


Figure 34.19. Kalyvia/Ancient Elis. Plan of the prehistoric cemetery with rock cut chamber tombs. Distribution of: P = Pottery with pattern burnished decoration; PA = Pottery with crusted painted decoration; R = Pottery with incised decoration (drawing by J. Rambach).

Differences in grave goods confirm the proposed chronological difference between the two rows of chamber tombs already suggested: *i.e.*, that those of the inner row are earlier than those of the outer:

Of nine vases with pattern burnished decoration eight were

found in graves in the inner row (Fig. 34.19). The only pattern burnished vase from a grave in the outer row (Grave 13) was a one-handled jug with simple rows of vertically burnished streaks on the neck,⁶³ a treatment that might, in fact, not even be considered “pattern burnished”.

The three non-ceramic grave goods that closely resemble items well known from EC I graves, the bone palette,⁶⁴ the boomerang-shaped stone pendant⁶⁵ and the pendant of semi-precious stone,⁶⁶ were also all found in graves of the inner row of tombs (Fig. 34.19). In contrast, pottery with incised decoration occurs in roughly equal quantities in both rows (Fig. 34.19).

Conclusions

The graves from Kalamaki in Achaia and Kalyvia have to be classified among the oldest, or perhaps are the oldest rock-cut chamber tombs with separate chambers, *stomia* and *dromoi* in Central and Southern Mainland Greece.⁶⁷ What was the origin of this new grave type? Their derivation may be sought in graves like the rock-cut Chalcolithic Grave 9 at Kalamaki, with its *dromos*, a deep, vertical shaft, circular in section, and its small, oval burial chamber laterally attached at the bottom of the *dromos*.⁶⁸

What are we to make of the fact that all the deceased in the inner row of chamber tombs at Kalyvia were, with a single exception, laid on their back in an extended position? Inhumations in an extended position were extremely rare in the EBA of the Central and Southern Greek Mainland and of the islands of the Cyclades before the discovery of the Kalyvia cemetery;⁶⁹ inhumation in a contracted position had been the rule. In the Peloponnese, only one inhumation in an extended position had been recorded at Corinth – in EH II chamber tomb 2 – and two were found in an EBA tomb at Kouphovouno, Lakonia.⁷⁰ In addition, an inhumation in Grave 39 of the Chalcolithic cemetery at Kephala on Keos was found lying on its back in an extended position.⁷¹ In Final Neolithic and EM Crete, according to Alram-

Stern, inhumation in a contracted position was usual, but inhumation in an extended position was not uncommon.⁷² Here we refer only to Lebena Tomb 1 (Papoura) where eight individuals had been laid on their back in an extended position.⁷³

Notes

1 I express my gratitude to Dr X. Arapogianni, Director of the former 7th Ephorate of Prehistoric and Classical Antiquities in Olympia between 1990 and 2006, for permission to publish the prehistoric evidence uncovered during the rescue excavations of 2004. I am also deeply grateful to Professor J. Davis for reading and improving the English text of this paper.

2 Theodorou-Mavrommatidi 2004, 1169–73; Alram-Stern 2004, 627

3 Kossyva 2009, 355–63

4 Alram-Stern 2004, 680 pls 41–2; Vasilogambrou 1998, 366–99.

5 Alram-Stern 2004, 680; Vasilogambrou 1998, 368, 376 figs 12, 36–7 drawing 6.

6 Rambach 2007, 63–92.

7 Rambach 2007, 64 fig. 1.

8 Rambach 2007, 64 fig. 5.

9 Rambach 2007, 64–5 figs 1–3.

10 Rambach 2007, 64, 68, 70.

11 Rambach 2007, 64 fig. 7.

12 Rambach 2007, 64 figs 8–9.

13 Rambach 2007, 64 fig. 10.

14 Rambach 2007, 65.

15 Rambach 2007, 65 figs 14, 16.

16 Rambach 2007, 64–5 figs 1–3.

17 Rambach 2007, 65 figs 1, 11.

18 Rambach 2007, 65 fig. 12.

19 Rambach 2007, 65 figs 1, 3, 13.

20 Rambach 2007, 73 fig. 1.

21 Rambach 2007, 66 figs 1, 3, 6, 13–14, 16, 18, 23–4.

22 Rambach 2007, 66 figs 4 (Grave 3), 22 (Grave 5).

23 Rambach 2007, 66 fig. 21 (Grave 14).

24 Rambach 2007, fig. 4 (Grave 3).

25 Rambach 2007, 66 fig. 8 (Grave 13), 10 (Grave 19), 16 (Grave

- 8), 18 (Grave 20), 23 (Grave 20), 24 (Grave 19).
- 26 *cf.* Rambach 2007, fig. 16 (Grave 8).
- 27 *cf.* Rambach 2007, 64 fig. 10 (Grave 19).
- 28 Rambach 2007, fig. 9 (Grave 12).
- 29 Rambach 2007, 66.
- 30 Rambach 2007, 66.
- 31 *cf.* Rambach 2007, 66–7 fig. 25 (Grave 19), 26 (Grave 5), 27 (Grave 1), 30 (Grave 2 East).
- 32 *cf.* Rambach 2007, 67 fig. 30 (Grave 2) and Pantelidou-Gkofa 2005, pl. 10.3 (Tsepi Grave 10) with, however, not perforated vertical lugs.
- 33 For Kalyvia *cf.* Rambach 2007, 67 fig. 32 (Grave 13). For Tsepi *cf.* Pantelidou-Gkofa 2005, pl. 10.2 (Tsepi Grave 9). For Kalamaki *cf.* Vasilogambrou 1998, 394–5 figs 20.3, 21, 22.3.
- 34 *cf.* Pantelidou-Gkofa 2005, pl. 23.1 (Tsepi Grave 22).
- 35 Rambach 2007, 67 fig. 33 (Grave 12).
- 36 Rambach 2007, 66–7 figs 28, 34.
- 37 *cf.* for this shape Pantelidou-Gkofa 2000, 25–34 fig. 24 with an example from Tsepi.
- 38 *cf.* Rambach 2000b insert 1–3, 14–15.
- 39 Rambach 2007, 67 fig. 33 (Grave 12). For this type of incised decoration on EC I vessels *cf.* Rambach 2000a pls 22.44, 103.1 (Soumbaria on Despotiko Grave 136).
- 40 Rambach 2007, 66 pl. 25 (Grave 19).
- 41 *cf.* Rambach 2000a pls 15.12, 103.3, cemetery of Kamari on Paros; Renfrew 1972, fig. 10.3.3, cemetery of Pelos on Melos.
- 42 *cf.* Rambach 2000a, 180 MN4560 pl. XI 8.
- 43 Rambach 2007, 67 fig. 35.
- 44 *cf.* Pantelidou-Gkofa 2005, pls 2.1, 3.2–3; 4.2 (Grave 4); 7.6; 8.4; 10.9; 15.9–10; 19.3 (Grave 16); 19.3 (Grave 17); 21.8–9; 22.10; 26.2 (Grave 25). For Grave 25 of Lakkoudes on Naxos *cf.* Rambach 2000a, pl. 94.21.
- 45 Rambach 2007, 67 fig. 36.
- 46 For an example from the EH I settlement of Palaia Kokkinia *cf.* Theochares 1951, 93–116 fig. 30β. For the example from the EH I grave of Markopoulos-Kovatzi *cf.* Rambach 1997, 313–6 fig. 3
- 47 *cf.* Rambach 2000a, pls 14.14 (Grave 105 of Pyrgos on Paros), 22.3 (Grave 135 on the island of Despotiko), 94.14 (Grave 20 of

Lakkoudes on Naxos).

48 Zachou 2004, 1267–76 pl. 1b (EH I–II settlement at Proskynas in Lokris).

49 Rambach 2007, 68 fig. 37.

50 Rambach 2000b, insert 14 (Kombinationstabelle I) column 1.

51 Rambach 2007a, 66–7 figs 27–8.

52 *cf.* Alram-Stern 2004, 154–7, 168–82; Maran 1998a, 7–106, 135–9.

53 *cf.* Maran 1998a, 16 n. 108–10; Alram-Stern (ed.) 1996, 95–8 n. 78; Alram-Stern 2004, 154–5; Zachos 2008, 37–41.

54 *cf.* Rambach 2007, 66–7 fig. 27.

55 Mortzos 1972, 386–421 pls 1–3, 6, 9–11, 17–21, 25, 27–31.

56 Betancourt 1985, 27–9.

57 Alexiou 1961–2, 88–91; Alexiou and Warren 2004.

58 *cf.* Tsipopoulou 1992, 72 cat. no. 18.

59 *cf.* Tsipopoulou 1992, 78 cat. no. 36.

60 Rambach 2007, 67 fig. 31.

61 Alexiou and Warren 2004, vase no. 351. For a parallel for the shape from Kalamaki in Achaia *cf.* Vasilogambrou 1998, 398 fig. 32.

62 Rambach 2007, 67 fig. 29.

63 Rambach 2007, 67 fig. 32.

64 Rambach 2007, 67 fig. 35.

65 Rambach 2007, 67–8 fig. 36.

66 Rambach 2007, 68 fig. 37.

67 A prehistoric grave uncovered in 1961 in a trial trench north-west of the ancient theatre of Elis was considered to be a unique combination of a rock-cut chamber tomb and a stone-built cist grave exhibiting obvious Cycladic influence; *cf.* Koumouzelis 1980, 55–63 fig. 18a–b, pls 23–6, 61–2; Koumouzelis 1981, 265–72; *cf.* also Douzougli 1998, 143–4 with n. 331. However, the excavators, N. Gialouris and V. Leon, never referred to this grave as a “rock-cut chamber tomb” (*cf.* Gialouris 1961a, 180 pl. 140a–b [θηκοειδής τάφος = cist grave]; Gialouris 1961b, 178 figs 177–9; Leon 1961–3, 42–4 figs 16–17, 20, 22–23 with n. 4, 6–11). In 2002 cleaning and re-examination of this grave conducted by the former 7th Ephorate of Prehistoric and Classical Antiquities in Olympia made it clear that this grave had never been a “rock-cut chamber tomb”, but only a stone-built cist grave. More details about this grave will be

presented by the author in a forthcoming article.

68 Vasilogambrou 1998, 368, 376 figs 12, 36–7 drawing 6; Koumouzelis 1980, 55–63 fig. 18a–b, pls 23–6, 61–2; Koumouzelis 1981, 265–72.

69 Alram-Stern (ed.) 1996, 112–15; Alram-Stern 2004, 299 n. 349.

70 Renard 1995, 311–2.

71 Coleman 1977, 48 (Grave 39).

72 Personal communication with E. Alram-Stern (spring 2011), who is preparing the “Forschungsbericht zur Ägäischen Frühzeit. Das neolithische und vorpalatiale Kreta.” See also Branigan 1987, 43–4 n. 1–5; Branigan 1993, 64–5, 81; Soles 1992, 243–4; Maggidis 1994, 66–7; Panagiotopoulos 2002, 112.

73 Alexiou and Warren 2004, 12.

Long-distance exchange of obsidian: Diachronic changes at the cave site of Alepotrypa, Greece

Danielle J. Riebe

Introduction

Investigations into the acquisition, manufacture, and application of obsidian have been conducted extensively since the 1960s, when Cann and Renfrew discovered that the chemical composition of lithics could be identified and used to determine material provenience.¹ This development encouraged archaeologists to begin asking more specific questions concerning where prehistoric peoples obtained their raw materials, and how processes of procurement influenced with whom they were interacting. In turn, explanations for more abstract, intangible phenomena, including social and cultural economic developments, could be addressed by modelling changes in trade and interaction.

Obsidian background

The limited number of obsidian sources in the Mediterranean makes this an ideal region for investigating trade in prehistory. The main obsidian sources are found on four islands, including Lipari, Sardinia, Yali, and Melos ([Fig. 35.1](#)). While the island of Antiparos is sometimes considered a fifth prehistoric source, the

evidence for its use in prehistory remains scarce, making its designation as a primary source controversial.² The island of Melos is perhaps best known for being the earliest exploited source of obsidian in prehistory. Materials found in the Upper Paleolithic and Mesolithic levels at Franchthi Cave have been sourced as Melian and illustrate the early ability of people to acquire and trade exotic and valuable goods.³ The trade of obsidian in the Aegean, especially Melian, steadily grew in the Neolithic and the Bronze Age, increasing the amount of exchange in what Perlès *et al.* refer to as a “putative millennia-old interaction sphere.”⁴ With the exception of ornate, decorative vases made from Yali obsidian, a majority of the obsidian found at sites in the Aegean came from Melos.⁵ The acquisition of Melian obsidian through central distribution or direct procurement (also referred to as monopoly or direct access)⁶ appears to have fluctuated over time,⁷ and may also be reflected in the type and quantity of obsidian found at individual sites.

Two quarries are known on Melos: Demenegaki and Sta Nychia (also referred to in the literature as Adamas, Ayia Nychia, or Bombarda) (Fig. 35.1).⁸ These quarries formed as a result of two volcanic occurrences on the island, the first in the Middle–Upper Pliocene and the second in the Lower Pliocene.⁹ Multiple investigations using fission track (FT) analysis have been undertaken to see if the two volcanic occurrences correlate with the two major quarries. Unfortunately, the dates for Sta Nychia are estimated at 1.57 ± 0.12 Mya and Demenegaki at 1.60 ± 0.06 Mya, making the quarries virtually indistinguishable through FT dating.¹⁰ While dating has proven unsuccessful, various compositional studies of the two quarries using techniques such as Optical Emission Spectrometry (OES),¹¹ Instrumental Neutron Activation Analysis (INAA),¹² and X-Ray Fluorescence (XRF)¹³ demonstrate that the quarries are chemically distinct from one another.¹⁴ These analyses have allowed archaeologists to identify the specific Melian quarry that archaeological material derives

from and to note whether the exploitation of these quarries changed over time.

Obsidian procurement: Controlled vs. direct access

Investigations into the economic implications of obsidian procurement and distribution have been underway since the early 1900s. Excavations at the large Bronze Age site of Phylakopi led to the first debate concerning the role of Melian quarries in the Mediterranean. The director of the excavations, D. Mackenzie, believed that controlled access, or a monopoly, over the quarries led to the increased importance of Phylakopi.¹⁵ However, he does take care to mention that exploitation of the quarries did occur prior to the Bronze Age and in the Neolithic the quarries were likely “independent stations exploited directly”.¹⁶ The researcher in charge of the obsidian descriptive analysis, R.C. Bosanquet, concurred with D. Mackenzie on the latter assessment, but did not presume that obsidian monopoly led to the rise of Phylakopi, rather he suggested that the site’s ideal port location enabled the inhabitants of Phylakopi to participate in trade and commerce resulting in its exalted place in Aegean trade.¹⁷ R.C. Bosanquet also remarked that in order to reconstruct the extent of Melian obsidian trade in the Aegean, petrographic analysis must first be conducted to determine material provenience.¹⁸

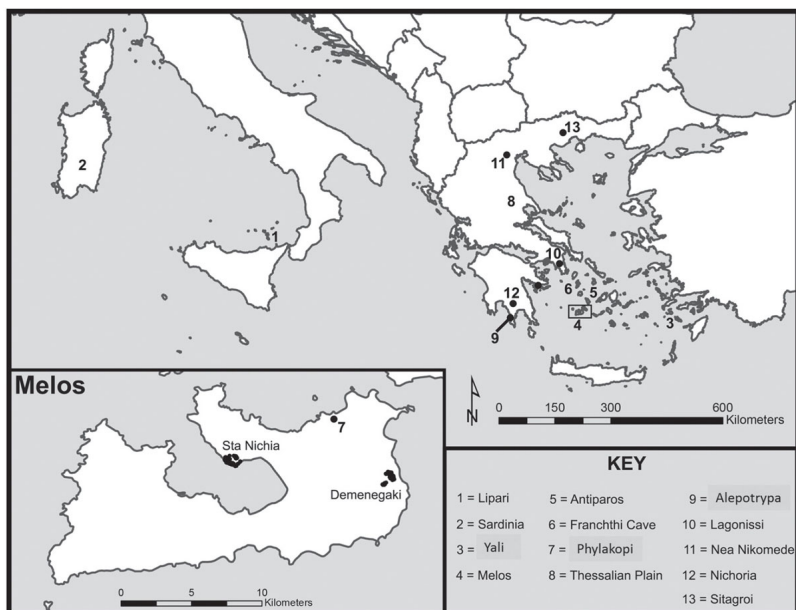


Figure 35.1. Regional map of the Mediterranean with labels for areas mentioned in text: 1) Lipari, 2) Sardinia, 3) Yali, 4) Melos, 5) Antiparos, 6) Franchthi Cave, 7) Phylakopi, 8) Thessalian Plain, 9) Alepotrypa, 10) Lagonissi, 11) Nea Nikomedeia, 12) Nichoria, 13) Sitagroi.

When J.R. Cann and C. Renfrew first conducted compositional analysis on Melian obsidian in the 1960s, one of their eventual goals was to identify the relationship between interaction and socio-economic complexity.¹⁹ Besides proving that Melos was the most commonly used source in the Aegean, C. Renfrew also was able to propose that obsidian in the Neolithic appeared to be directly procured, followed by varying degrees of down-the-line trade.²⁰ This model of Melian exploitation continued to be in effect until the Bronze Age when the Minoans likely assumed some control over the quarries.²¹

Following C. Renfrew, R. Torrence proposed that controlled and direct access could be determined through an analysis of the archaeological material at the quarries themselves. The systematic

analysis of the quarries revealed that the amount of debitage generated at the site of Phylakopi during the Bronze Age was not consistent with a controlled, highly specialised, organised operation. She did concede, however, that part-time craft specialisation might have occurred.²² Her findings supported Renfrew's conclusions that direct access was implemented in the early phases of Melian obsidian procurement, yet she insisted that more research must be carried out on obsidian from archaeological sites in the Aegean to determine the extent to which Melian material was exploited, and if exploitation changed over time.²³

Building upon the conclusions reached by both C. Renfrew and R. Torrence, C. Perlès has argued that until the Late Neolithic, the procurement and distribution of obsidian was controlled by a limited number of skilled specialists. These individuals were in charge of all phases of obsidian exchange from procuring, producing, and distributing the obsidian to mainland Greece.²⁴ However, this controlled access was only temporary, and C. Perlès concludes that by the Late and Final Neolithic both specialists and non-specialists alike participated in direct procurement as proposed by C. Renfrew and R. Torrence.²⁵ C. Perlès' conclusions are primarily based on her analysis of material from Neolithic settlements on the Thessalian Plain and Franchthi,²⁶ and her research set a precedent for future complementary studies in Greece.

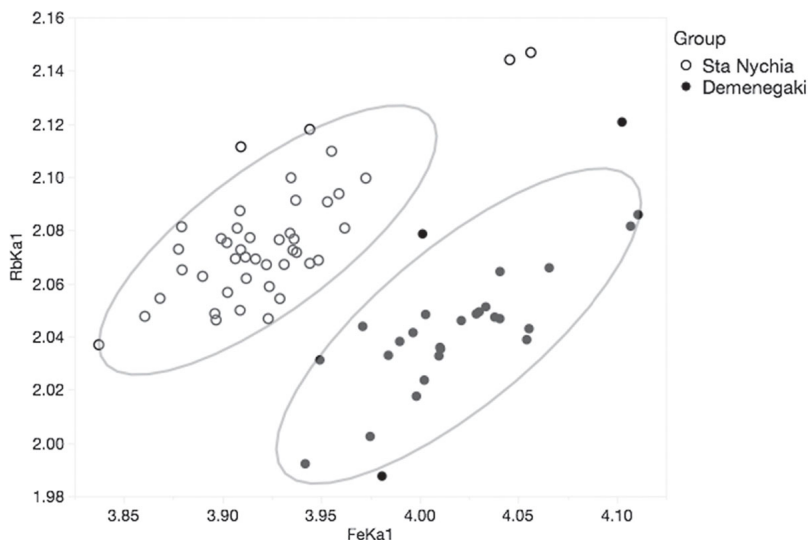


Figure 35.2. P-XRF compositional results for the 78 obsidian samples from Alepotrypa (circle) showing quarry source differentiation. The bivariate plot illustrates the log base-10 concentrations of rubidium (Rb) and iron (Fe). Ellipses represent 90 % confidence intervals.

Project description and methodology

This project expands upon the previous analysis of Melian obsidian in an attempt to model if diachronic changes occurred in the exploitation of the two known quarries of Sta Nychia and Demenegaki. When assessing obsidian, multiple techniques, such as INAA and XRF, are often implemented to identify major, minor and trace elements. For similar reasons, this study used a portable X-Ray Fluorescence (p-XRF) device to analyse obsidian samples. As opposed to R. Torrence's approach at determining controlled vs. direct access through an analysis of material found at the quarries,²⁷ this project focuses on the analysis of obsidian artefacts recovered from excavations at the Neolithic cave site of Alepotrypa on the Mani Peninsula in Southern Greece to identify diachronic changes in ancient procurement patterns. The data and conclusions that follow are based on preliminary results,²⁸ but the findings so far offer new insights into the connection between the

Melian quarries and the Mani.

P-XRF Analysis

In the framework of the Diros Project, directed by Drs G. Papathanasopoulos, A. Papathanasiou, W. Parkinson, and M. Galaty, a total of 125 archaeological obsidian samples from Alepotrypa were analysed using a Bruker III p-XRF device in the summer of 2012. The Bruker is equipped with an X-ray tube that has an Rh anode. The instrument was run at 40kv and 10μA and each sample was analysed for 300 seconds. Calibration for all samples was completed using the 40 reference standards developed by Bruker and Murr.

Table 35.1. Table illustrating the number of obsidian samples analysed from Unit 1 of Beta Trench and the corresponding phases with calibrated dates.

<i>Period</i>	<i>¹⁴C dates</i>	<i>Depth (metres)</i>	<i>Demenegaki</i>	<i>Sta Nichia</i>	<i>Total obsidian samples</i>
Final Neolithic	4500-3200 BC	0.00–1.20	1	3	4
Final Neolithic/Late Neolithic (Disturbed)		1.20–1.80	2	6	8
Late Neolithic	5500-4500 BC	1.80–2.80	3	5	8
Late Neolithic (Not secure)		2.80–4.00	2	3	5
Late Neolithic/Middle Neolithic	ca. 5500 BC	4.00–4.30/4.60	0	0	0
Late Early Neolithic	ca. 6000 BC	4.60–4.80	0	0	0
Total			8	17	25

Compared to previously published geochemical studies,²⁹ the analysis completed with the Bruker confirmed that the materials originated from the two Melian quarries and are compositionally very distinct from one another. The best elements to illustrate the compositional differences between the quarry sources are strontium (Sr), rubidium (Rb), iron (Fe), and yttrium (Y). Following the analysis, it was determined that only 78 samples from secure archaeological contexts were compositionally obsidian.^{30,31}

Focusing solely on these 78 obsidian samples, the p-XRF results were converted to log based-10 and the results displayed in a bivariate plot with rubidium (Rb) on the y-axis and iron (Fe) on

the x-axis (Fig. 35.2). The Alepotrypa obsidian assemblage separated into two major groups, mirroring the results obtained by Perlès *et al.*,³² and thereby identifying the material as originating from the two quarries on Melos. Sta Nychia was the most dominant source represented by 51 samples compositionally identified as originating from that quarry. The remaining 27 samples were determined to be from Demenegaki. Material from other obsidian quarries in the Aegean was not identified in the samples analysed.

Chronological data from Alepotrypa

In the fall of 2010, Drs W. Parkinson, M. Galaty and P. Karkanas collected ¹⁴C samples from unit 1 of trench Beta (B/1) at Alepotrypa. As this is the deepest trench in the cave, it provides the most information concerning the duration of habitation at the site. Based on preliminary ¹⁴C dating and a microstratigraphic analysis of the excavated strata, it was found that the site was occupied from the latter half of the Early Neolithic until the Final Neolithic. I sub-selected the archaeological obsidian recovered from B/1; of the 78 samples from known contexts, 25 pieces (or 32%) came from B/1. By referring to the contextual information for the samples, I was able to sort the materials and reconstruct a relative chronology for Melian exploitation at Alepotrypa (Table 35.1).³³ As illustrated in the chart, Sta Nychia is the dominant source throughout the occupation of the site.

Conclusions and future work

The results of this analysis have revealed several new important pieces of evidence to contribute to the ever-growing study on obsidian in the Aegean. At the site of Alepotrypa, Sta Nychia is the dominant source for material throughout the duration of habitation at the site. This dependence on the Sta Nychia quarry in the Aegean, though not previously commented on, can be identified in previously published compositional studies. For

example, the table produced by Shelford *et al.* details the analytical results of obsidian from other sites in the Aegean including Franchthi, Lagonissi, Nea Nikomedeia, Nichoria, Sitagroi, and several others.³⁴ Though the sample sizes are small (typically less than 10 samples per site) and the materials come from a variety of contexts, the results from these sites show a bias towards the procurement of obsidian from Sta Nychia. Future work will determine whether this pattern persists at other sites in the Aegean or if quarry exploitation changed over time.

This explorative project and its preliminary conclusions build on decades of research and although the results are still preliminary and the sample size is relatively small, the elemental technique employed has proven to be very encouraging for discerning patterns in obsidian procurement. Continued research both at Alepotrypa and at other sites in Greece will help to further reconstruct prehistoric access to Melian obsidian, trade in the region, and their impact on socio-cultural developments in the Aegean.

Notes

- 1 Cann and Renfrew 1964.
- 2 Renfrew *et al.* 1965; Williams-Thorpe 1995, 231.
- 3 Perlès 1987; Perlès 1990a; Perlès *et al.* 2011.
- 4 Perlès *et al.* 2011, 42.
- 5 Renfrew *et al.* 1965; Torrence 1986.
- 6 Torrence 1984.
- 7 Perlès *et al.* 2011.
- 8 See Francaviglia 1984; Renfrew *et al.* 1965; Torrence 1986.
- 9 Acquafredda and Paglionico 2004, 422; Fytikas *et al.* 1976; Fytikas *et al.* 1986.
- 10 Arias *et al.* 2006.
- 11 See Cann and Renfrew 1964.
- 12 See Aspinall *et al.* 1972; Aspinall and Feather 1978; Bigazzi *et al.* 1986; Thorpe 1978.
- 13 Tykot 2002.
- 14 Arias *et al.* 2006; Williams-Thorpe 1995.

- 15 Mackenzie 1904, 244–5.
- 16 Mackenzie 1904, 246.
- 17 Bosanquet 1904, 230–1.
- 18 Bosanquet 1904, 229.
- 19 Renfrew 1972, 1975.
- 20 Renfrew 1972, 442–3; Renfrew 1975, 47.
- 21 Renfrew 1972, 449.
- 22 Torrence 1982, 220–1; Torrence 1984, 62.
- 23 Torrence 1982, 220.
- 24 Perlès 2004; Perlès *et al.* 2011.
- 25 Perlès *et al.* 2011, 42.
- 26 Perlès 1992.
- 27 Torrence 1984.
- 28 Since this chapter was written more analyses have been conducted resulting in additional data that has been used to better identify changes in quarry exploitation over time, see Riebe forthcoming.
- 29 Perlès *et al.* 2011.
- 30 The other 47 samples were excluded from the interpretation of the data due to a lack of secure provenience or because they were compositionally not obsidian.
- 31 The software (S1PXRF) and calibrations (GL1.cfz) provided by Bruker AXS was used to calculate concentrations for all samples.
- 32 Forthcoming Riebe, D. J., “Patterns of Exploitation and Exchange: Preliminary Compositional Results of the Obsidian Assemblage from Alepotrypa Cave,” in *Alepotrypa Cave in the Mani, Greece: A Festschrift to Honor Giorgos Papathanasopoulos on the Occasion of his 90th Birthday*, A. Papathanasiou, W. Parkinson, D. Pullen, M. Galaty, and P. Karkanas (eds.), Oxbow.
- 33 The ¹⁴C dates for Alepotrypa will be published in 2017, see Papathanasiou *et al.* forthcoming.
- 34 Shelford *et al.* 1982, 191.

Part V

Aegean Islands, Crete and Cyprus

Ayios Ioannis, Thasos: The economy of a small coastal site dated to the second half of the 4th millennium BC

Stratis Papadopoulos, Ourania Palli, Sophia Vakirtzi and Eleni Psathi

Introduction

The site of Ayios Ioannis is situated on a small, protected bay in South-Eastern Thasos (Fig. 36.1a). Excavations undertaken by the former 18th Ephorate of Prehistoric and Classical Antiquities at the easternmost part of the bay (Fig. 36.1b) brought to light, apart from a Late Roman olive-press, the remains of a small prehistoric settlement.¹ An area of approximately 150 sq. m was excavated, revealing the installation of two circular huts (Fig. 36.1c), and structures pointing to everyday family and agro-pastoral activities: stone benches, large flat oval stones, and circular or oval clay structures with pebble bases (possibly ovens) (Fig. 36.1d), hearths, trash pits, and clay floors. The majority of these features do not exceed 50 sq m.

Among the artefacts, mortars and pestles, cooking and storage vessels, textile equipment and chipped stone tools are present, while copper is extremely rare: only three objects have been found, a needle and two pendants. Finally, important quantities of faunal material, both large mammal and marine, have been

collected, as well as small archaeobotanical samples. The pottery assemblage is characterised by types that relate it to the tradition of the earliest phases of the Early Bronze Age of the North Aegean, but there are also typological elements which point to the transition between the Final Neolithic and the Early Bronze Age.²

It should be noted that the limited area of the settlement, the restricted spread of surface pottery and the relatively poor household equipment indicate a rather small community. Additionally, the stratigraphy of the site does not testify to more than one occupational phase. For this single-phase radiocarbon dates were provided by the analysis of charcoal and animal bones. The results place the small site of Ayios Ioannis, with high probability, between 3370 and 3100 cal BC,³ thus bridging the gap which until recently characterised the prehistory of Thasos from the Final Neolithic of Limenaria⁴ to the earliest occupational phase of Skala Sotiros⁵ and Ayios Antonios Potos⁶ in the Early Bronze Age.

This paper focuses on the economic activities of the community that occupied the site. In particular, we will present the chipped stone industry, the zooarchaeological material and the textile equipment.⁷

Chipped stone industry

The chipped stone industry from Ayios Ioannis consists of 102 artefacts. The collection is small in size, as it comes from a small-scale excavation.⁸ Local quartz is the dominant raw material, except for two pieces in flint. As natural quartz abounds in the region, the separation of natural quartz pebbles from the stone industry preceded the study. Thirty-nine natural quartz pebbles were found in the archaeological layers. The macroscopic study of the technomorphological features of the chipped stone assemblage study follows that outlined in Tixier *et al.* 1980.

The quartz is a silicon dioxide (SiO₂). In Thasos, it is found in the form of veins in the gneiss or as pebbles in streams.⁹ The

macroscopic study distinguished two types of quartz: milky quartz (Fig. 36.2c–d) and rock crystal (Fig. 36.2a–b), which differ in the flaking and use properties.¹⁰ Their quantitative presence (rock crystal: 44.1% – milky quartz: 53.9%) is very similar, which is explained by the *in situ* collection of the raw material.

The milky quartz presents in many cases internal zones and cracks that definitely made it difficult to knap. It has been used to produce flake cores (20.8%), flakes (28.3%) and retouched tools (24.5%). The rock crystal has been used to produce flakes (25.5%) and it is quite clear that it was preferred almost exclusively for blade cores (17%) and blade production (8.5%). The percentage of the retouched tools (17%) is also high.

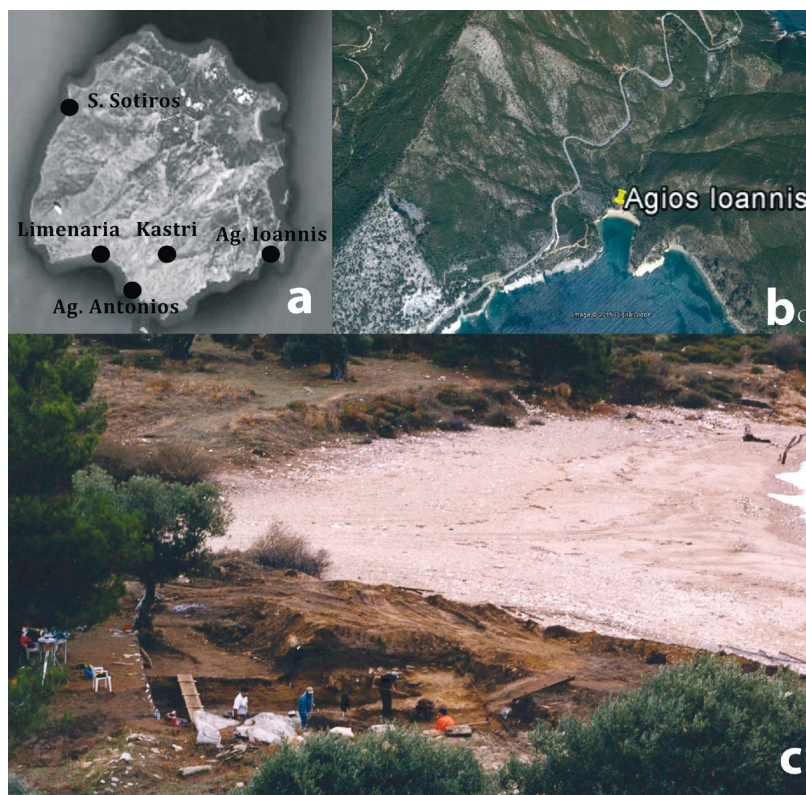


Figure 36.1. a. Map of Thasos with the major Neolithic and Early Bronze Age sites; b. The bay of Ayios Ioannis and the area of

excavation; c. View of the excavation from the western part of the bay.

The majority of flake cores in both milky quartz and rock crystal have non-normal geometrical shapes. They bear a small number of flake scars indicating low core reduction, which could be explained by the abundance of the raw material. This simple primary production technique uses direct impact with a hard or soft hammer to produce flakes with elliptical, sub-rectangular or triangular shapes (Fig. 36.2c–d).

Nearly all (nine) blade cores are formed in rock crystal with only one exception in quartz. Indirect percussive reduction was attributed to the blade production, but there are also cores with prismatic character indicating the application of pressure, which was favoured probably due to the homogeneity and better elasticity of the rock crystal (Fig. 36.2a–b). In one case, on a natural prismatic core, the use of its six natural peaks as prescriptive guides to knapping is visible. The blades present small thickness.

The percentage of cortex (11.76%) indicates the *in situ* reduction stages. Two examples of micro-blades from rock crystal have also been found. The lack of small reduction chips may reflect biased collection due to limited sieving, or the limited extent of the excavated area.

The retouched tools represent 20.6% of the assemblage. They are formed both in rock crystal quartz and milky quartz (ratio 8:13). For the tools of milky quartz, the best possible quality of the rock has been chosen. In typological terms, they are distinguished in edge tools (side-scrapers, Fig. 36.3a; denticulates, Fig. 36.3d; end-scraper, notches, Fig. 36.3c) with piercing edge (piercers with thick active edge-becks, Fig. 36.3b), point (Fig. 36.3e) and composite tools (combinations of notch-piercing edge and side-scraper notches). The variety of types for such a small collection reveals craftsmen familiar with the production of tools with specific shape and probably use.

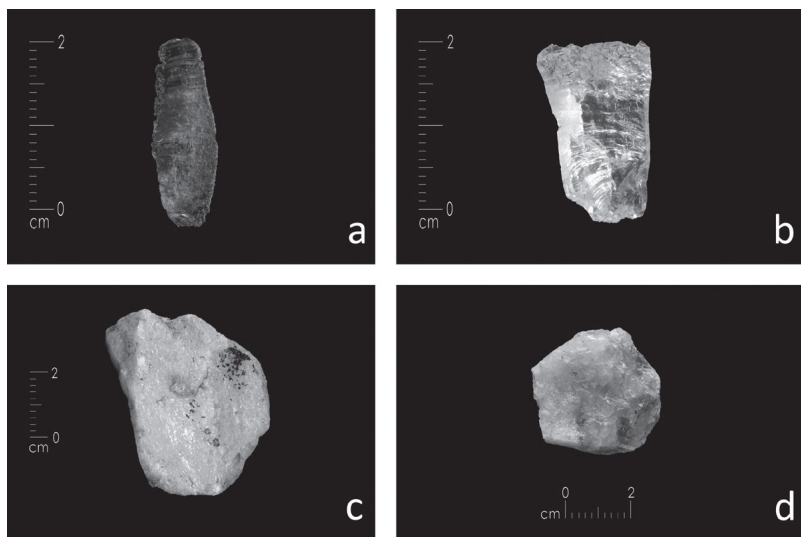


Figure 36.2. a–b. Blades; and c–d. flakes.

The intra-site distribution analysis of the assemblage offers interesting information. In most trenches, one to six stone pieces have been found. Three trenches (5×5 m) (Fig. 36.4) present higher concentrations: Trench ΓO (30 pieces), BO (21 pieces) and $\Gamma \Sigma$ (10 products from rock crystal). These trenches correspond to outdoor spaces of the prehistoric settlement, suggesting that knapping activities took place outside the huts. Stone artefacts of all production stages were also found in two storage pits (ΓO -pit 1 and $\Gamma \Pi$ pit-1) one trash pit (BO pit -I) and in a structure (ΓB -structure 2).

There is a lack of published *comparanda* of quartz and rock crystal from sites geographically and chronologically compatible with Ayios Ioannis.¹¹ On the opposite mainland coast and more specifically in the area of Drama, during the Final Neolithic and Early Bronze Age, the intensification of the use of local raw materials easily accessible in the immediate vicinity has been observed.¹² Both quartz and rock crystal are well represented in the stone assemblages.

On the island of Thasos, the use of both quartz and rock crystal

as raw materials dates back to the Neolithic period¹³ and continues to the early Iron Age,¹⁴ something that is well documented by archaeological research. Direct communication with the modern regions of Drama, East Macedonia and the Aegean guaranteed – supplies of imported stone raw materials, such as various types of flint, chalcedony, jasper and Melian obsidian, which do not exist on the island. Quartz is strongly represented at all excavated sites, like Skala Sotiros, Limenaria and recently in Ayios Antonios Potos.

It seems that the constant use of quartz and rock crystal is part of a long tradition of local raw material knapping, which started – according to the current archaeological data from Thasos – in the Neolithic period. The prehistoric inhabitants of Ayios Ioannis knew that there was plenty of raw material in the area, on which they could count to satisfy their needs. The *in situ* collection and production of the stone industry at the intra-house and community levels is connected with areas of outdoor activity or rejection. It reveals experienced craftsmen with knowledge of the properties of the rocks, as well as use of specific production techniques. The almost exclusive use of quartz and rock crystal reveals an economic model of self-sufficiency in harmony with their directly-supplied vital resources. The variety of the retouched tools in combination with the choice of milky quartz to produce flakes and tools, and of the rock crystal for blade production, reveal a deep knowledge of the raw material and its properties on the part of the craftsmen.

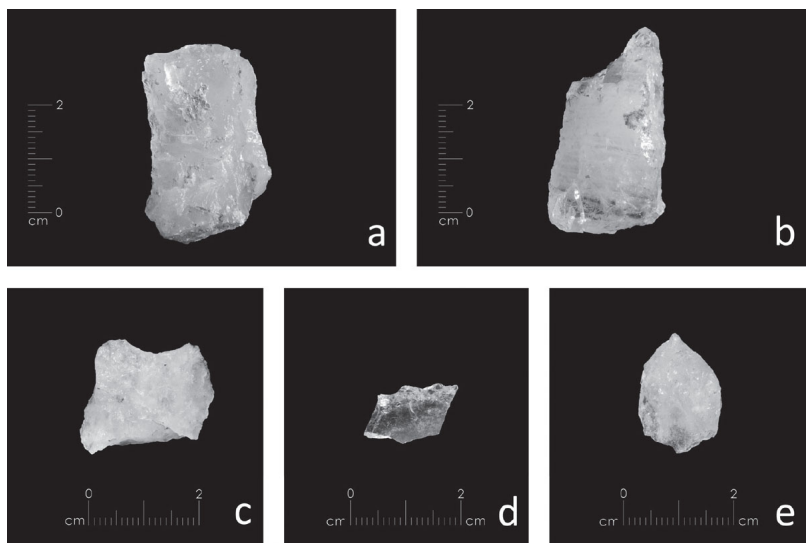


Figure 36.3. Retouched tools: a. side-scraper; b. bec; c. notch; d. denticulate; e. point.

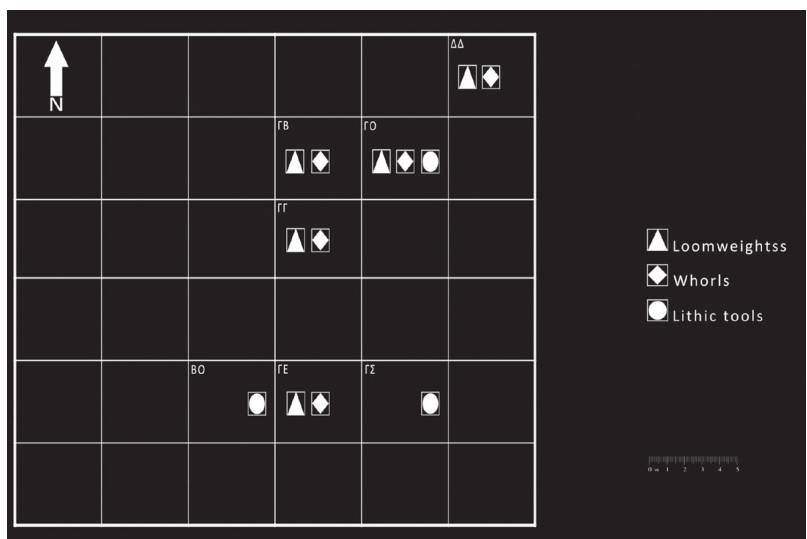


Figure 36.4. Distribution of spindle whorls, loomweights and lithic artefacts by trench plot.

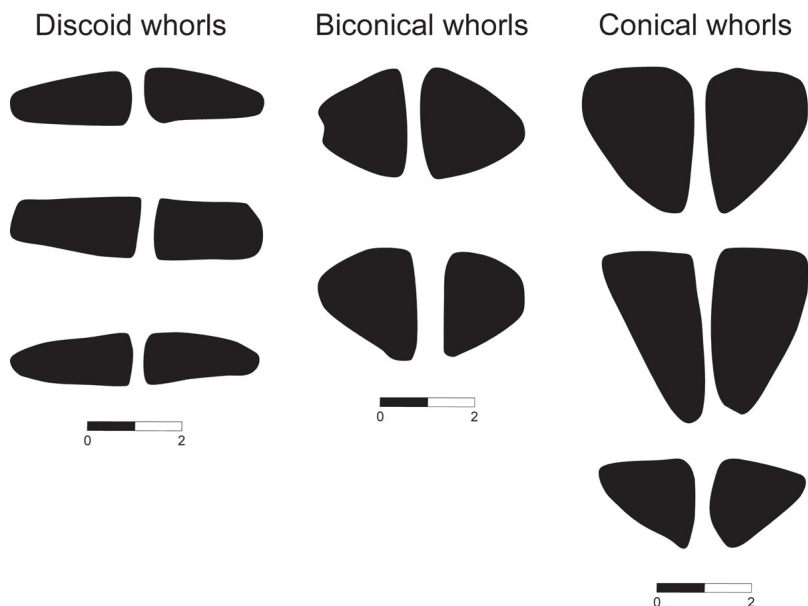


Figure 36.5. Spindle-whorl types.

Due to its low morphological standardisation, quartz traditionally tends to be counted as a secondary raw material in stone assemblage studies, and also to be related with opportunistic and simplified knapping techniques. The lithic industry of Ayios Ioannis – though small in quantity – highlights the capabilities and the role of quartz, which is a very common raw material for the stone industries of Northern Greece.

Textile manufacture¹⁵

Textile tools recovered at the site demonstrate that the production of cloth was one of the economic activities taking place at the settlement. An assemblage of 38 spindle whorls, one pierced spool and nine cylindrical weights are presented and discussed here. Aside from revealing local production, these tools also provide important *comparanda* for textile technologies attested at other sites of the region, on both a synchronic and a diachronic level, as will be elaborated in the discussion.

Spindle whorls (Fig. 36.5)

All the spindle whorls of the assemblage are made of well-fired clay, ranging from brownish to orange and reddish colour, characterised by small whitish inclusions and mica. They belong to three basic typological categories, the discoid, conical and biconical. The majority of the whorls (about 70%) belong to the discoid type, demonstrating a plano-convex or lentoid section. Three pierced sherds are also examined in this typological category. Fewer are the conical and biconical examples (15% and 13% of the total, respectively). The biconical whorls belong to the symmetrical variation, except for one asymmetrical example. In addition to the 38 spindle whorls, one pierced clay spool was found in the excavated area and is considered a potential spindle whorl.¹⁶ Typological variations are observed within each type, with reference to the diameter-height ratio (low, normal or high whorls). Only two spindle whorls bear decoration, with impressed motifs around the central hole on one end. In the first case the decoration consists of small circular impressions, while in the second the decorative motif is crescent-like. Both belong to the discoid type.

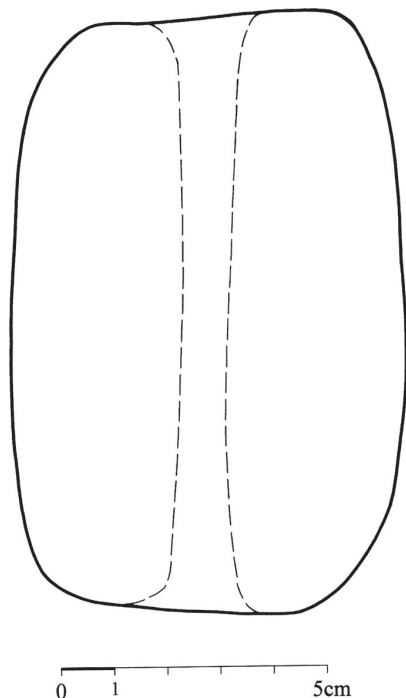


Figure 36.6. Cylindrical loomweight Δ901.

In terms of their functional potential, the spindle whorls at Ayios Ioannis are suitable for producing thick qualities of thread. The surviving intact specimens (about 50% of the total) have a diameter range between 3.8 and 7.1 cm with concentrations around 4.5 and 6 cm. The weight range is between 19 and 78 gr, with concentrations between 29 and 59 gr. This weight range corresponds to more than one quality of yarn, but they would all fall in the category of coarse products. Interestingly, a distribution of typological categories according to diameters may be observed: conical and biconical whorls never exceed 5 cm in diameter, while all the discoid have diameters larger than 5 cm. In terms of weight, however, it has not been observed that different types of whorls belong to respectively different classes of weight.

The whorl sizes attested at Ayios Ioannis suggest that the fibres spun were of a rather coarse quality, and that the end product

would be thick yarn.¹⁷ Coarse wool or plant fibres could both have been exploited, although no hard evidence for the processing of plant fibres exists, as is usually the case. On the other hand, the use of wool for textile manufacture is supported by the faunal remains of the ovicaprids, which demonstrate slaughtering profiles compatible with a secondary product target.¹⁸ In any case, the coarse quality of the yarns produced is also indicated by the size class of the loom-weights found at the site.

Loom-weights (Fig. 36.6)

A group of nine elongated cylinders, pierced along the longitudinal axis, were found. Initially they were inventoried as fishing weights. However, there are reasons to support their interpretation as loom-weights instead: they are more or less homogeneous in terms of size, and they were found in close proximity to the spindle whorls. The earliest use of the warp-weighted loom on the island of Thasos, then, is attested at Ayios Ioannis.¹⁹

An interesting feature of some of these cylinders is that in most cases both ends are flattened. Moreover, in two cases, parts of the long sides are also slightly flattened. It cannot be determined if this is a functional attribute or simply a random, manufacturing trait.

The dimensions of the cylinders range from 11 to 14 cm in length and 6 to 9 cm in thickness. Six are preserved intact or almost intact. The weight recorded for those fluctuates between 500 and 930 gr, but most weigh over 700 gr. On the basis of tools with comparable weight and thickness analysed at Copenhagen's Centre for Textile Research,²⁰ it can be proposed that the Ayios Ioannis loom-weights are suitable for the production of coarse, open fabrics with thick threads.

It cannot be certified whether this group corresponds to an original set, but if this is the case, the nine loom-weights would have been set up in two rows. Given the sum of their maximum

thickness, and dividing it by two, a rough estimate can be made of the maximum width of the cloth produced in such a set-up, which would not surpass 40 cm.

Discussion

The spindle whorls and the loom-weights were found concentrated in a specific area of the excavation, characterised as “outdoor” space, and close to a construction which was interpreted as a hearth (Fig. 36.4).²¹ It appears that this area was an intense activity zone, since lithic material also emerged there in considerable quantities (especially in trench ΓΟ).²² If the archaeozoological evidence is taken into account, it can be suggested that all stages of textile production, from fibre acquisition to weaving, took place at the settlement, perhaps at the household level.

The end products would have been fabrics of a coarse quality, since only thick threads can be made with the spindle whorls found. The loom-weights are compatible with the spindle whorls in terms of their functional attributes. As far as the raw materials for production are concerned, coarse wool is a candidate.²³ The possibility of plant fibre use cannot be ruled out, however, especially since vegetal fibre processing tends to leave almost no traces in the archaeological record.²⁴

Regional parallels for these tools are reported from Sitagroi phase IV, which is contemporary with Ayios Ioannis. The phase IV weaving toolkit consists of elongated cylinders which fall in similar length, thickness and weight ranges.²⁵ The dominant whorl types at Sitagroi during this phase are primarily conical, and secondly biconical. “Flat” and “shallow conical” types (the equivalent of “discoid” in terms of functionality) were dominant during the Neolithic phases I–III, but their quantities decrease from phase IV onwards. On the contrary, the percentage of the biconical type rises dramatically in phase V.²⁶ The same picture emerges from published material from Dikili Tash. There, too,

most of the typological categories which are either flattish or low in section (“plano-concave” and “conique/plano-convexe”) are ascribed to the Late Neolithic horizon of the settlement. Very few examples of the asymmetrical biconical type are also attributed to this period, but a far more numerous group of symmetrical biconical whorls emerges in the Early Bronze Age horizon (Bronze Ancien I and II).²⁷

Returning to the island of Thasos, we should stress that Skala Sotiros, a major Early Bronze Age settlement which flourished on the west coast of the island at the same time as Sitagroi V, yielded a rich spindle whorl assemblage where the biconical and conical types dominate, while the characteristic Ayios Ioannis discoid whorl appears to have become extinct. Moreover, the whorls are on average smaller and lighter at Skala Sotiros.²⁸ On the other hand, the weaving technology employed at Ayios Ioannis does not seem to continue to be used on the island, at least on the basis of the Skala Sotiros data, since the later assemblage does not include any loom-weights.²⁹

In view of the parallels and comparisons presented briefly above, it appears that the weaving and spinning assemblages of Ayios Ioannis are indeed transitional in character. They include both elements which do not seem to survive in the succeeding period and typological features, which become popular in the Early Bronze Age, such as the biconical spindle whorl. In this aspect, the textile tool assemblages of the settlement gain special importance as they provide a rare “snapshot” of the evolutionary chain of the region’s textile technologies and stimulate crucial research questions related to the factors that fostered the adoption of specific technological choices at the expense of others.

Table 36.1. Animal species representation at Ayios Ioannis in terms of NISP (Number of Identified specimens) and MNI (Minimum Number of Animals), for the domestic taxa.

<i>Taxa</i>	<i>NISP</i>	<i>% NISP</i>	<i>MNI</i>	<i>% MNI</i>
<i>Capra hircus</i>	317	21.86	16	44.44
<i>Ovis aries</i>	129	8.90	8	22.22
<i>Capra/Ovis</i>	839	57.86	(45)*	
<i>Bos taurus</i>	75	5.17	3	8.33
<i>Sus domesticus</i>	27	1.86	4	11.11
<i>Canis familiaris</i>	42	2.90	5	13.89
<i>Martes</i> sp.	8	0.55		
<i>Dama dama</i>	8	0.55		
<i>Lepus europaeus</i>	1	0.07		
<i>Testudo</i> cf. <i>graeca</i>	19	1.31		
Total	1465		36	
(Unidentified taxonomically)	(234)			

*Pooling together all ovicaprids we obtain MNI=45, which is a more realistic estimation of their population, since only a minor part of their remains can be attributed to the genus level, leading thus to the underestimations of both sheep and goats.

Animal bone remains

The faunal assemblage: taxonomical composition, basic quantitative and taphonomical data

2445 animal bone remains have been recorded, of which 60% have been identified anatomically and taxonomically ([Table 36.1](#)).³⁰

The faunal assemblage is attributed to eight large mammal and one land tortoise taxa: *Bos taurus* (cattle), *Ovis aries* (sheep), *Capra hircus* (goat), *Sus domesticus* (pig), *Dama dama* (fallow deer), *Canis familiaris* (domestic dog), *Martes* sp. (a species of marten), *Lepus europaeus* (hare), *Testudo* cf. *graeca* (a species of tortoise, possible the spur-thighed). Domestic fauna heavily dominates the bone

assemblage; the wild species account for only a few remains. Ovicaprids (sheep and goats) dominate the former in terms of both number of remains and animals (79% of *Capra/Ovis contra* 21% for the three other species in terms of MNI).³¹ However, we note the small demographic sample, overall and in particular for the secondary species (Table 36.1). Skeletal preservation displays the same pattern for all domestic species suggesting the treatment of entire carcasses in the settlement. This can also be demonstrated by fragmentation modes and butchery marks preserved on bone cortex of all species but dogs; there is no clear evidence of consumption for this last.

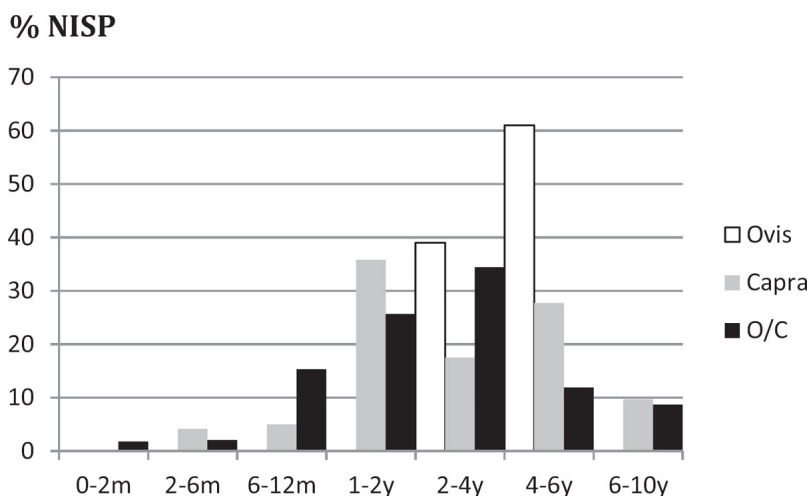


Figure 36.7. Mortality profiles for the ovicaprids at Ayios Ioannis. On the x-axis are plotted age classes defined in Payne's 1973 work: A = 0–2 months, B = 2–6 months, C = 6–12 months, D = 1–2 years, E–F = 2–4 years, G = 4–6 years, H–I = 6–10 years. In the present work we have grouped together the wear stages E+F and H+I. O/C represents the teeth not identified to the species level.

The herding of sheep and goats.

Separating sheep from goats remains a problematic task, even if the relevant literature on the subject has been enriched during the

past years.³² For this reason we have followed a rather conservative approach: 35% of the ovicaprid pool has been assigned to *Capra* or *Ovis*, providing a ratio 2.5 goats:1 sheep (in terms of NISP). Considering the mountainous landscape of the island, the predominance of goats was expected and has also been previously attested in the Early Bronze Age faunal assemblage of Skala Sotiros.³³

Producing distinct mortality profiles for goats and sheep based on tooth wear data,³⁴ a common early life pattern has emerged, followed by a different trend of exploitation for each species after the age of two. In both species, most animals were killed after the first year of life, with an emphasis between two and six years, while several even older animals are also present. Sheep show a striking pattern of culling exclusively between two and six years, while goats are more regularly distributed among the different age classes (Fig. 36.7).

Survivorship curves resulting from long bone fusion data³⁵ present the same general picture of the ovicaprid flock dynamics as shown by the above mortality profiles. Again, the curves of goats and sheep have been plotted separately, but a third curve has been added that pools together identified and unidentified at the species level (Fig. 36.8).³⁶ Very interesting is the high survival of animals younger than ten months. Then follows a gradual but rather sharp decrease of survivor rates from the 10–8-month age class to the 2–3-year age class, especially in goats. Teeth culling profiles produced globally the same results as the survivorship curves. Together, the two approaches to population dynamics suggest an exploitation model of the ovicaprid flock that aims more at secondary products, like milk, fleece or wool, than at meat. Keeping alive a significant part of animals beyond the age of 2–4 years strongly points to milk production especially by goats. On the other hand, the same culling method could indicate the breeding of sheep for fleece exploitation. However, given the small assemblage that prevents a sex-related mortality study, we must be

cautious in our interpretations concerning fleece and, in particular, wool production.³⁷

To our knowledge, few available data from sites geographically and chronologically compatible with Ayios Ioannis exist, especially in Central-Eastern Macedonia and on Thasos. These come from the Late Neolithic phases of Sitagroi,³⁸ Vassilika, Dimitra,³⁹ Dikili Tash,⁴⁰ and finally the EBA of Skala Sotiros on Thasos.⁴¹ At Dimitra and Dikili Tash, faunal studies have documented a kill-off pattern aiming equally at meat and milk yields, while at the other sites the presence of an important percentage of animals beyond the age of 2–4 years has been interpreted as evidence for a focus on secondary products and, given the predominance of sheep at all sites but Skala Sotiros, wool exploitation.

The secondary species

Pigs must have been regular meat suppliers for the inhabitants of the site: both teeth and bone data provide culling ages mostly between a few months and two years, which is the typical age span for this animal. On the other hand, bovines were possibly multi-purpose animals: tooth wear data from loose molars point mostly between six and more than eleven years of age,⁴² indicating their use for transportation or conceivably ploughing. Although we do not possess enough conclusive measurements, judging from some skeletal remains, dogs were medium to small-sized animals. Long bone fusion data indicate deaths of younger than eight months and older than 2.5 years.⁴³

(% NISP)

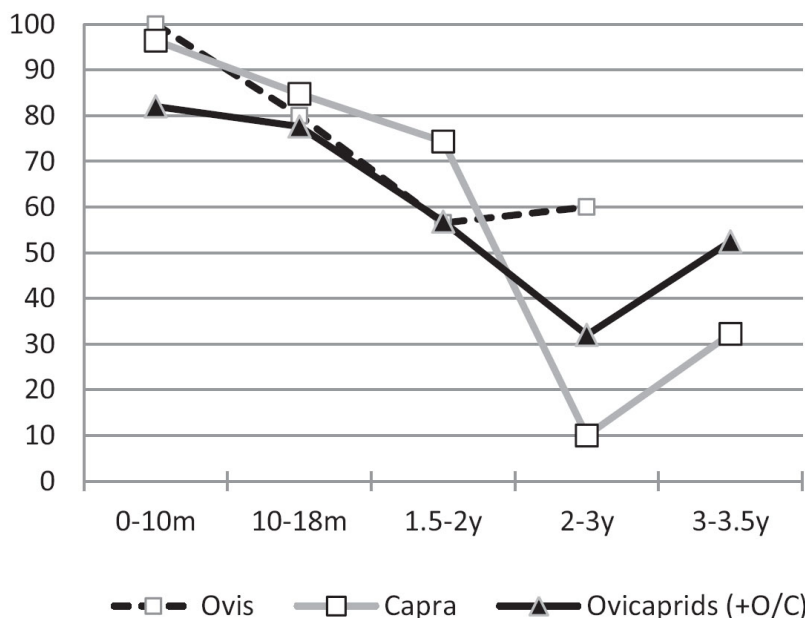


Figure 36.8. Survivorship curves for the ovicaprids at Ayios Ioannis. On the x-axis are plotted age classes based on Silver's 1969 long bone fusion data. O + C = Ovis and Capra: the sum of ovicaprid long bones.

Finally, the contribution of wild species to the economy of the settlement was very sporadic. Fallow deer, hares and tortoises could have been either hunted or trapped, while tortoises may literally have been collected. There is direct proof of tortoise consumption: cutmarks, rarely produced, have been detected on the interior face of the ventral shell of a tortoise. They prove the deliberate removal of muscles from the shell at the level of the shoulder with the aid of a lithic tool.

Conclusions

According to the morphology of the site and the archaeological data studied and presented in this paper, it can be suggested that Ayios Ioannis was a small settlement comprising no more than a

few families. Although we cannot strongly support its seasonal use, the relatively poor cultural and faunal remains point to a brief occupation, in accordance with the radiometric data.

The subsistence strategies which were developed involved the exploitation of natural resources, the local production of various products, always aiming at self-sufficiency, perhaps due to the mountainous and isolating nature of Thasos, which could prevent regular communication with contemporaneous communities. One of these products is the chipped-stone industry from quartz; of course, it is possible that this was a complementary toolkit, since the above study does not discuss the ground stone tools, but it is nevertheless noteworthy that quartz was selected, being the only local and abundant raw material. Similar evidence of self-sufficiency emerges as far as textile manufacture is concerned. All stages of cloth production seem to have taken place on site. Finally, the animal economy was based principally on the herding of ovicaprids, through a mixed system of exploitation targeting mostly dairy products and possibly also fleece. Until the completion of the study of marine resources, we cannot estimate their exact role in the dietary patterns of the population, but important quantities of sea food have been recorded at Skala Sotiros, also a coastal site.

A transition from the Neolithic to the Early Bronze Age at Ayios Ioannis is indeed suggested, especially by textile technologies and subsistence strategies (exploitation of faunal resources with an emphasis on secondary products), complementing, as a result, the impression already gained by its pottery assemblages. The significance of this site in the evolution of the prehistoric economic systems of Thasos during the transition from the 4th to the 3rd millennium BC will be even better understood when comparable and highly anticipated data are published from other major sites on the island, such as Neolithic Limenaria and Early Bronze Age Skala Sotiros and Ayios Antonios Potos.

Notes

- 1 Papadopoulos 1998.
- 2 For the site description and pottery, see Papadopoulos *et al.* 2003.
- 3 For the analysis of dating results and further discussion, see Maniatis and Papadopoulos 2011, 26–35.
- 4 Maniatis and Facorellis 2012, 282–3.
- 5 Papadopoulos *et al.* 2010.
- 6 Papadopoulos *et al.* 2015; Maniatis *et al.* 2015.
- 7 The study of the marine faunal and archaeobotanical material is still in progress.
- 8 See notes 1, 2 above.
- 9 Eptropou 1992, 802; Tsompos and Zachos 1999, 15–16.
- 10 For quartz see Andrefsky 1998; Luedtke 1992.
- 11 These are Sitagroi IV (Tringham 2003b, 83–4), and Skala Sotiros (Peristeri 1989).
- 12 Kourtessi-Philippakis 2006a.
- 13 Kourtessi-Philippakis 2012.
- 14 Koukouli-Chryssanthaki 1992, 689.
- 15 Textile tools drawings by S. Vakirtzi, J. Navarro and L. Boloti.
- 16 For a detailed account or discussion of the spinning assemblage, see Vakirtzi *et al.* 2014.
- 17 Andersson-Strand 2010, 14–15; Barber 1991, 51–2.
- 18 Psathi this volume.
- 19 Neolithic habitation is known, so far, at Limenaria, a settlement on the south coast of the island, but no loom-weights from that site have been published so far.
- 20 Martensson *et al.* 2009, 394–6.
- 21 Papadopoulos and Maniatis forthcoming.
- 22 Palli this volume.
- 23 For the difficulties in determining wool exploitation as a herding target, see Psathi this paper.
- 24 For a more detailed discussion on this issue, see Vakirtzi *et al.* 2014.
- 25 Elster 2003, 240.
- 26 Elster 2003, 231, tab. 6.1.
- 27 Treuil 1992a, 124–7.
- 28 Vakirtzi *et al.* 2014.
- 29 Two objects that feature suspension holes are inventoried from

Skala Sotiros. One is a crescent-like pottery handle in secondary use, with two holes pierced at one end. The other is a clay object, trapezoidal in plan and flat in section with three holes pierced on the narrow end (personal examination of the inventory). Both objects are unique and their use is enigmatic.

30 The rest of the bone assemblage is composed of remains unidentified down to the family, genus or species level or of completely unidentified bones, usually mid-shaft fragments of small dimensions. Such fragments, shorter than 2 cm, have been exempted from the quantification of the faunal assemblage. It should be noted that the faunal material has been collected either by hand sorting or dry sieving, leading to the possible loss of significant quantities of small-sized bone remains. In fact, the analysis of the skeletal representation per species reveals loss of teeth and short bones, like carpals and tarsals.

31 For Table 36.1: NISP=Number of Identified Specimens, MNI=Minimum Number of Individuals. For the definition of these quantitative terms, see Lyman 1994, 100–2. Post-cranial elements provide a higher MNI for sheep, goats and dogs than teeth, in this case based on the most frequent anatomical element. Inversely, teeth gave the bovine and suid MNI, after combination and addition of different age classes.

32 Halstead *et al.* 2002; Helmer 2000; Zeder and Pilaar 2010; Zeder and Lapham 2010.

33 Yiannouli 1994, 308–24.

34 Based on the tooth wear stages and age classes described by Payne 1973.

35 Based on Silver's 1969 data.

36 A significant number of long bones cannot be attributed either to *Capra* or *Ovis*, but these nevertheless contribute to a more representative picture of ovicaprid mortality and herd management.

37 Fleece exploitation is very difficult to demonstrate or to differentiate from milk exploitation. Moreover, such physical characteristics as the fine hairs of wool or the increased size of sheep do not occur until the Bronze Age. For further discussion with references, see Helmer *et al.* 2007, 49.

38 Bökönyi 1986.

39 Yiannouli 1994, 337–9.

40 Helmer 2000.

41 Yiannouli 1994, 340–1.

42 Based on the tooth wear scoring system developed by Ducos 1968.

43 Bone fusion data from Barone 1986, 76.

The Neolithic to Chalcolithic transition on the island of Gökçeada (Imbros)

Burçin Erdoğan

Introduction

Around 5650/5500 cal BC, major changes occurred in Western Anatolia. These changes occurred in all aspects of cultural life, as indicated by changes in settlement pattern, spatial organisation of settlements, the plan of buildings, art and pottery production. This period is characterised by a sudden disappearance of red slipped, thin-walled Neolithic pottery and an appearance of dark burnished Chalcolithic pottery with channelled and pattern burnished decoration and horned handles. Chalcolithic pottery is of close resemblance to the pottery of the Balkan Karanovo III and Early Vinča cultures. The changing pottery tradition in Western Anatolia has led some researchers to claim newcomers from the Balkans. Significant social changes around 5500 cal BC are also reported in the Balkans. This period in the Balkans is characterised by the appearance of dark burnished ware, the so-called process of “Vinčaization”. Most of the early argument about the dark burnished ware of the Balkans was interested mainly in locating its origin, as a part of a diffusionist model, *i.e.* the origin of the dark burnished ware in the Balkans as a result of migrations from the Near East.¹ M.V. Garašanin presented his concept of the

Balkan-Anatolian complex on the basis of the formation of the Balkan dark burnished ware cultures originating as a result of diffusion from south and east.² The concept included as a specific element a slow, continuous migration from Anatolia to the Middle Danube. The Balkan-Anatolian complex was accepted by most of the post-1950s diffusionists such as Jovanović, Benac, and Dimitrijević.³

M. Özdoğan suggests a similar concept – the Anatolian-Balkan cultural zone – in which, from the beginning of the Neolithic period up to the beginning of the Bronze Age, most of the Balkan Peninsula and West Anatolia was a single cultural zone.⁴ M.V. Garašanin's Balkan–Anatolian complex was referred to by T. Efe the “Thracian-Northern Anatolian complex”,⁵ and by V. Nikolov, the “Circumpontic cultural zone”.⁶ On the basis of the Orman Fidanlığı excavations and surface survey in the Eskişehir region in the North-West Anatolian hinterland, T. Efe shared the early diffusionists' idea that the origin of the Vinča culture was the result of a migration from Anatolia.⁷ On the other hand, in the 1970s G. Georgiev insisted on the local origin of the Karanovo III culture in Thrace.⁸ New excavations at tell Karanovo show that the once-claimed hiatus between Karanovo I and II, and between Karanovo II and III, are not attested.⁹ There is a gradual development in pottery. J. Chapman stated his belief in an autochthonous development that led to the emergence of the Vinča culture and its dark burnished ware.¹⁰ Others, such as M. Sfériadès, also supported an autochthonous development of the Vinča culture.¹¹ All these arguments indicate that at this stage of our knowledge it is difficult to find the origin of the dark burnished ware tradition in Western Anatolia or in the Balkans.

Excavations at Uğurlu on the island of Gökçeada (Imbros) show that major changes occurred around 5500 cal BC. Pottery tradition, buildings plans and the spatial organisation of the settlement are quite different than those of Western Anatolia and the Balkans.

The site and its stratigraphy

The island of Gökçeada (Imbros) is about 17 km from the Gelibolu (Gallipoli) Peninsula and covers an area of 289.5 sq km. Uğurlu is located on the western part of the island (Fig. 37.1). The site is a low mound covering an area of approximately 250 m × 200 m on a gentle slope at the eastern foot of Mount Isa (Doğanlı). The main Uğurlu-Dereköy road cuts through the site. The site has also been damaged by a long trench, dug for the opening of an irrigation system. The Pilon stream lies at the eastern part of the site, and there is also a spring nearby. The island is mountainous and the solid geology is composed mainly of volcanic rocks. The western part of the island is generally less steep and has the best agricultural land.

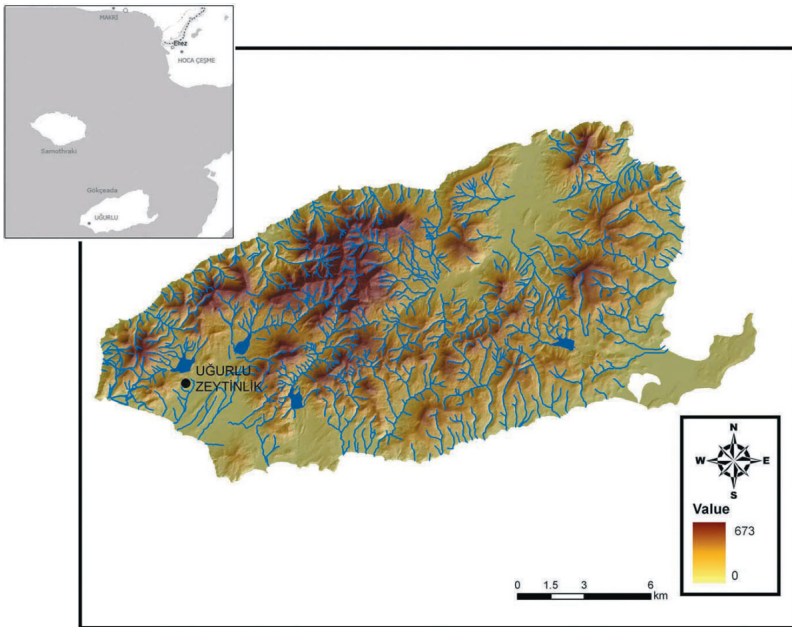


Figure 37.1. Map of the island of Gökçeada (Imbros) locating Uğurlu.

During the four years of excavation, six main cultural phases, designated as I–VI (counting from top to bottom), and at least nine layers of occupation so far have been revealed.¹² The earliest 3

phases (VI, V and IV) date to the Neolithic period, *ca.* 6800–5600 cal BC. Phase III is marked by the Neolithic transition (to the Chalcolithic) at the site. The succeeding phase II has revealed at least two occupational layers of the North-Western Anatolian Kumtepe IA-Beşik Sivritepe cultural horizon. Scattered sherds from EBA and Medieval times have been found in the topmost level, phase I.

Uğurlu between 5500 and 4300 cal BC

The earliest occupation is located in the eastern part of the settlement, close to the Pilon stream. Phase VI is represented in sounding trenches only. No architectural structures, with the exception of scattered stones in clusters and a hearth, were found in this Phase. No ceramics or any other clay objects were recorded. Three AMS radiocarbon dates range from *ca.* 6800–6600 cal BC (2 α). So far two possible occupational layers of Phase V have been recorded. A single AMS radiocarbon date from the early layer of phase V (Wk-29173: 7618 ± 36 BP) calibrates to 6566–6518 cal BC (2a). Neolithic phase IV has signs of continuity, but the cultures of the island and mainland clearly diverge. Differences in material culture may be a deliberate expression of local identity within a wider cultural setting. The settlement enlarged towards the west. Phase IV is characterised by striking evidence of early craft specialisation and long-distance communications, as well as some changes in pottery tradition. It seems likely that the pottery from this phase was the product of local development as it is different from other Western Anatolian sites. Three AMS radiocarbon dates (Wk-29175: 6982 ± 42 BP, Wk-29174: 6996 ± 36 BP, Beta – 309674: 6680 ± 40 BP) range from *ca.* 5980–5660 cal BC (2a).

Phase III is marked by the Neolithic to Chalcolithic transition. The settlement was divided into two sections, a residential area in the east and a possible ritual area in the west. A large, multi-roomed structure (Building 3), some 10×10 m in size, has been

excavated in the eastern part of the settlement (Fig. 37.2). The building was quite elaborate, being built with dry stone walls and yellow-coloured plaster mixed with clay floors. The plan consists of two cell-like rooms (R3 and R4) in the west and a relatively large room (R1) in the east. Another cell-like room (R2) in the east was almost completely destroyed by surface activities. The largest room is ca. 4×4 m in dimensions. The corners of the room were paved with stone slabs. The north-western corner of the room yielded several grinding slabs, indicating these were areas in which foodstuffs were ground and consequently where part of the food preparation process took place. Most of the animal bones and shells were also concentrated there. A narrow doorway lies in this part of the room, from which one stepped over a raised threshold to enter another small room, which was not excavated completely. Two large bone tools, an awl and a chisel, were found in the south-west corner of the room. They were presumably used for leatherworking or other purposes. A post hole and a large stone with a hole in the middle lies near the north-east corner of the room. A large well-made *Spondylus* bracelet was also found in this room. A cell-like small room (R3) in the west measures ca. 1.5×3 m. Storage vessels and two serpentine adzes were found in this room. A single AMS radiocarbon date from Building 3 of phase III (Beta-345836, 6410 ± 30 BP) calibrates to 5470–5320 cal BC (2a).

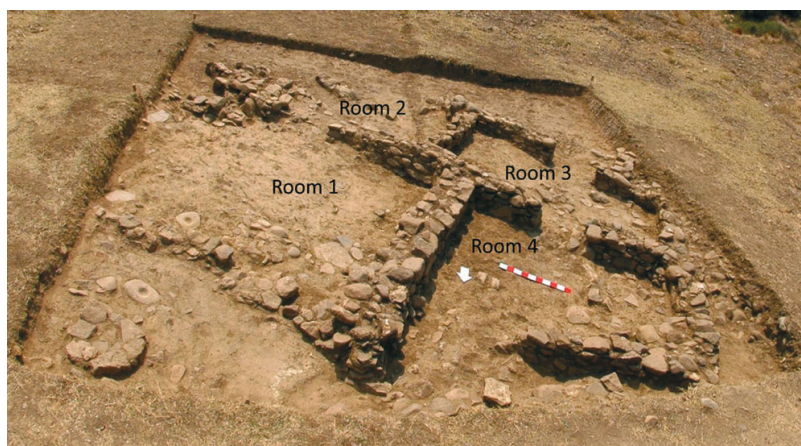


Figure 37.2. Building from phase III.

A geophysical survey was conducted as part of the Uğurlu Archaeological Project by M. Drahor, with the aim of mapping the buried remains of the site. The magnetometer surveys on the eastern part of the settlements have identified numerous phase III structures including a large 20 × 5 m rectangular structure and probably multi-roomed buildings.

In the western part of the settlement a total of 30 pits have been excavated. The inner walls and the pit bottoms were plastered with yellow-coloured clay with a thickness varying between 3 and 5 cm. They were circular in shape and some as deep as 1 m with diameters ranging around 1 m. They were deliberately filled with large stones. A large quantity of animal bones and pottery sherds were found inside the pits. Some pits have small finds such as figurines, bone and stone tools. Bracelets or rings of *Spondylus gaederopus*, pendants from *Cerastoderma* and bone tools were also recovered from these pits. Inside one pit a total of 13 skeletons were found. A partial skeleton was also found in another pit. Red ochre was applied to the burial. Yellow-coloured clay from the pits was examined for its mineral content using X-Ray Diffraction (XRD) and for its chemical composition using X-Ray Fluorescence (XRF). XRD investigation showed that the sample is bentonite. It contains montmorillonite, illite, quartz and calcite. Feldspar, clinochlore and christobalite were also present in the sample.



Figure 37.3. Fragments of bracelets made from *Spondylus*, phase III.

The pits were dug through a layer that included large quantities of *Spondylus gaederopus* pieces, as well as bracelets or rings made from *Spondylus gaederopus* (a total of 70 pieces) (Fig. 37.3). Bone tools were also abundant. Besides the awls there are smoothers and chisels made of deer antler. Objects of *Spondylus* were highly prized and probably endowed with symbolic significance. The distribution of Aegean *Spondylus* in the Balkans and Central Europe during the Neolithic and Chalcolithic periods is considered one of the most telling and important indications of large-scale prehistoric trade. *Spondylus* workshops have been identified in Neolithic Greece at the sites of Dimini, Sitagroi, and Stravroupolis.¹³ Uğurlu items indicate that a *Spondylus* workshop might have also existed on the island in this period.

The anthropomorphic figurines from phase III are numerous and vary typologically. Among the assemblage, acrolithic figurines are very common. These figurines possess flattened bodies with folded arms and heads from a different material that would have been inserted in a hole on the neck. A triangular-shaped *Spondylus* head with slanted excised eyes indicates that they may have been inserted in these figurines (Fig. 37.4a). Other common anthropomorphic figurines have wide hips and thighs, thin bodies

and folded arms (Fig. 37.4b). Schematic anthropomorphic figurines with exaggerated buttocks are also common. These figurines have incised decoration, and they have always been broken along the vertical axis. Venus-like female figurines are also noteworthy (Fig. 37.4c). They hold their shoulder with one hand, while shielding their genitals with the other.

The pottery of phase III is homogenous and completely different than that of the previous phases. Sherds are coated with a black, greyish black slip on reddish-brown surfaces and generally show a mottled appearance on the surface. Fresh breaks in sherds show incomplete oxidation firing. Four-footed bowls with ear-like or strap handles, large lids, boxes, button-like or horned handles are characteristic (Fig. 37.5).



Figure 37.4. a. Two acrolithic figurine fragments and a portable head made from Spondylus; b. A clay figurine, phase III; c. A Venus-like figurine from phase III.

Decoration is common and generally applied on four-footed

bowls and boxes. Various decorative techniques have been employed, such as impression, incision and channelling. Impressed decoration comes in several variations, such as dots, triangles and rectangles. Chips of clay were cut out and arranged in different patterns, such as a chessboard and triangle. Spiral and meander designs are common. Incised decoration has white paste fill. No exact similarities exist between Uğurlu phase III pottery and Anatolian pottery traditions. Though Phase III pottery bears some resemblance to the pottery of the Balkan Karanovo III and Early Vinča cultures, it is not identical and should be considered as a local development.

Preliminary analysis has not shown important differences in the lithic material between phase III and phases IV–VI. However, tools are more numerous in Phase III than in previous occupations. Blades are very rare and *pieces esquillees*, scrapers and borers are more numerous than in phases IV–VI. Obsidian is now very rare and all originate in Melos. Only a few tools made from “Balkan flint” were found.

Excavations in phase II have revealed evidence of the North-Western Anatolian Chalcolithic Kumtepe IA/Beşik Sivritepe cultural horizon. A trapezoidal building, measuring *ca.* 5 × 5 m (building 1) and a rectangular building, measuring *ca.* 7 × 6 m (building 4) have been excavated. The walls of the trapezoidal building are made of stone (Fig. 37.6). The building had suffered from a partial collapse, and an additional wall and stone buttresses were constructed on the northern part of the building to make it useable again. Each stone buttress measures 1.5 × 0.87 m and stands to a height of 0.4 m. A post hole and a large stone with a depression in the middle lies near the stone buttresses. The building has a compact earthen floor, and no features such as an oven or hearth have been found in the building.

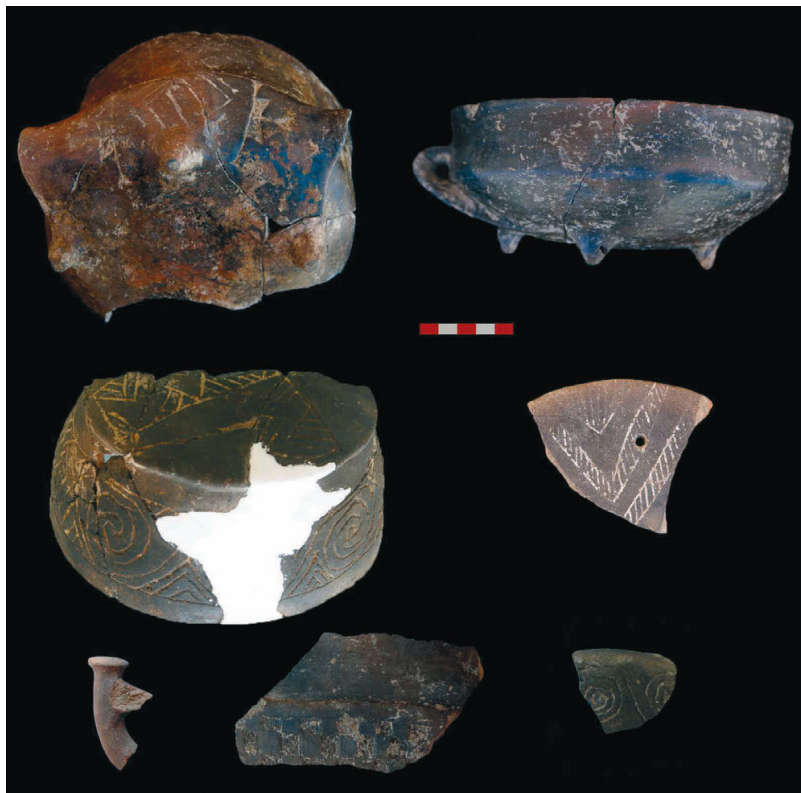


Figure 37.5. Selected pottery from phase III.



Figure 37.6. Building from phase II.

The south-western part of the building was designated for storage. Large storage vessels and a total of 130 *Muricidae* shells

were found there. In addition, seven stone axes and adzes, eleven worked bones, mostly awls, four *Spondylus* bracelets, worked shells and a clay figurine head were also found in this building. A semi-circular courtyard wall of the building was discovered on its west end. It is made of large stones 0.50–2 m in width and is preserved up to 2–3 courses. A unique human-faced vessel was found in the courtyard (Fig. 37.7). A single AMS radiocarbon date from Building 1 of phase II (Beta-362320, 5500 ± 30 BP) calibrates to 4449–4267 cal BC (2σ).

The other rectangular building has been damaged by surface activities and erosion (Fig. 37.8). The eastern part of the building has been completely eroded. This building dates to phase III–II transition. A centrally placed entrance lies on the southern long wall. There is a 1.4×1.0 m patio in front of the entrance. A large bull's horn was found in the entrance. It appears to have hung on an interior wall. The floor of the building was plastered with burnt lime mixed with soil and sediment. Traces of red paint remain on parts of the floor surface. Traces of red paint were also found near the entrance. Two broken clay figurines were discovered near the patio. One figurine has exaggerated (we assume) buttocks, flat body and folded arms, much like Balkan figurines. Another figurine looks like phase III figurines with thin bodies and folded arms, but it has a long neck. Traces of house decoration with animal horns and paintings on walls and floors appear as early as PPNA in the Near East, and are often related to communal or public buildings. This building at Phase III-II transition at Uğurlu can also be interpreted as a communal building.



Figure 37.7. Rim fragment with pattern burnish decoration and a rim of a human-faced vessel.



Figure 37.8. The communal building of phase III-II.

The pottery of phase II at Uğurlu is characterised by burnished black, grey, red and buff coloured wares. Coarse wares seem to have been made in larger sizes than fine wares. The most noticeable feature of the pottery is its decoration. Pattern

burnished, channelling, and incised decorations are characteristic features of the pottery. Horned and wishbone handles are also characteristic elements of this pottery. The chipped stones are too rare to make a precise study, but it seems there is no significant change from the previous phase. Long and thin macro-blades from the Balkan flints exist in this phase.

Conclusion

Significant changes in building plans, pottery tradition and spatial organisation of the settlement around 5500 cal BC were identified at Uğurlu on the island of Gökçeada (Imbros). Significant changes around 5500 cal BC are also reported in various sub-regions of Western Anatolia, the Balkans and Greece, as well as in Central Europe. It is not yet clear whether these were due to climate change or some other factors.

Large multi-roomed structures and perhaps large rectangular structures with stone walls of phase III at Uğurlu display different traits than the architectural tradition of the Balkans and Anatolia. The phase III pottery at Uğurlu is different from the Western Anatolian pottery tradition, and some similarities and differences exist between phase III pottery at Uğurlu and Balkan Karanovo III and Early Vinča pottery. The pottery evidence indicates that phase III at Uğurlu is a local culture on Gökçeada (Imbros), related to the Karanovo III and Early Vinča cultures in the Balkans. Uğurlu phase III is characterised by *Spondylus gaederopus* items. An abundance of untreated *Spondylus gaederopus* and other items made from the same shell indicate that a *Spondylus* workshop may have also existed in the island.

The archaeological evidence from Uğurlu indicates that around ca. 5000 cal BC the impact of the North-Western Anatolian Kumtepe IA-Beşik Sivritepe cultural horizon began to appear through the island of Gökçeada (Imbros). A small settlement displaying affinities with the Kumtepe IA-Beşik Sivritepe cultural horizon was attested at phase II at Uğurlu. This relatively small

settlement of Uğurlu phase II consists of domestic and communal buildings. How the phase II settlement at Uğurlu ended, on the other hand, is obscure at this point in the research. 2015–2017 excavations show that the Building 3 is a very large building complex with 7 rooms. Despite some differences, similarities exist between Uğurlu and Gülpınar architecture. The western part of the settlement at Uğurlu seems to have been used for ritual purposes. The communal Building 4 was used both in Phase III and II. There is an open courtyard in front of the building where 30 pits were found. A pit with 13 burials is noteworthy. Adult men, women and children were thrown into the pit. A single radiocarbon date from the pit points to 5300 cal BC.

Notes

- 1 Milošević 1949.
- 2 Garašanin 1956.
- 3 See Chapman 1981.
- 4 Özdoğan 1993.
- 5 Efe 2001, 64.
- 6 Nikolov 1998.
- 7 Efe 2000; Efe 2001.
- 8 Georgiev 1971.
- 9 Hiller and Nikolov 1997.
- 10 Chapman 1981.
- 11 Séfériades 1990.
- 12 Erdoğan 2011; Erdoğan 2014.
- 13 Souvatzi 2008.

Land management in the Final Neolithic/ Early Bronze Age Aegean? Some tantalising indications from Southern Euboea

Žarko Tankosić¹

Introduction

In this paper, I argue for the existence of large-scale (regional level) land management in some parts of the prehistoric Aegean based on the recent survey work in Southern Euboea (the Karystia). Data to back this claim come from two projects: the Karystian Plain (the Kampos) survey (2006–8) and the survey of the Katsaronio Plain (2012–6).² Based on the available evidence I argue (a) that the absence of any substantial settlement during the Final Neolithic (FN) and the presence of only one such settlement in the Kampos during the Early Bronze Age (EBA) indicate intentional preservation of this agricultural area free of major habitation; (b) that, under conditions of maximized production, the available land in the Karystia created substantial surpluses of agricultural products that surpassed the needs of the estimated local population by several orders of magnitude; and (c) that the created surpluses may have been used in socially relevant arenas both locally (the Karystia) and in broader geographical contexts (the Aegean).

There are few, if any, areas of the Aegean that have not been

touched by past or current human activity. Hence, the entire area can be considered a “cultural landscape”. The entanglement between humans and the landscape they inhabit is multifaceted and complicated, even more so in a heavily lived-in area such as most parts of Greece. It involves both the material expression of that interaction in terms of the built landscape and the symbolic meaning that both the presence of material remains and lack thereof carry for individuals and communities that inhabit it. Our ability to recognise, observe, and interpret these data stands in direct correlation to the degree of preservation of the material culture left in the landscape by people who inhabited it in the past. To make matters more complicated, a cultural landscape is necessarily a palimpsest, since diachronic material remains can and often do have meaning for the people who live in their vicinity long after they were originally created/deposited. In such cases, however, their meaning is often altered in a way that makes them conform to the contemporary symbolic systems and worldviews. In addition, certain locations were considered favourable for habitation by people from different epochs that were not necessarily related to each other. Nevertheless, despite all the difficulties, attempting to understand the ways prehistoric people used and constructed the landscape is also a rewarding task, since landscape provides both a physical and social backdrop against and inside of which the cultural and physical life of humans plays out. Understanding it helps us understand social processes that created it. For example, it can tell us much about social boundaries, ritual practices, land ownership, social differentiation, organisation of society, and the like. Although not the only one, archaeological survey is a good method to learn about cultural landscapes. Unlike excavations of individual sites, survey provides spatial evidence on a large(r) geographic scale that is unobtainable otherwise. In addition, surface survey provides data on sites and activity locations that would be likely overlooked by even the most ambitious regional excavation

project.

Much work has been done in Southern Euboea, the target area of this paper, by generations of Greek and international scholars. Notwithstanding earlier visitations, the first serious attention given to this section of the island was during extensive archaeological surveys of the whole of Euboea, organised by L. Sackett and colleagues,³ D. Theocharis,⁴ and A. Sampson.⁵ The steady accumulation of knowledge on the Karystia's past, including its FN heritage, has been greatly augmented by the Southern Euboea Exploration Project (SEEP) founded in 1984 by D. Keller and M. Wallace. Over the course of the last three decades, members of SEEP have surveyed large swaths of the area during the first archaeological survey effort that concentrated exclusively on Southern Euboea. All this previous research produced FN materials in some quantities. In fact, the FN is the most well-represented phase of Aegean prehistory in the Karystia, followed closely by the Early Bronze Age.⁶ Unfortunately, only a very small number of sites dated to this phase have been excavated thus far. Most of the excavated FN material evidence comes from the Ayia Triada Cave⁷ and from a small-scale excavation on the Plakari Hill, at the south-western edge of the town of Karystos.⁸ For this reason I rely here primarily on the situation as glimpsed from the patterning of surface material.

Geographic setting

Southern Euboea, the Karystia, is a somewhat ambiguous term that can cover, depending on one's definition, anything from all of the southern half of the island of Euboea to only a small sliver of land south of Mount Ochi and its watershed, around the modern town of Karystos (Fig. 38.1). I think that a restricted geographical definition of the Karystia is more applicable to the prehistoric periods under discussion here, when no roads existed, beasts of burden were rare or absent, and maritime routes faster and safer than mountain passes. Hence, I define the Karystia as the area

south of the large and rugged mountain chains of Ochi, Gresmi, Yannitsi-Figias, Pyrgos, and Koukouvaya. The Karystia defined in such a way includes the Paximadi and Bouros-Kastri peninsulas, the area around the modern town of Marmari, the Karystian plain (Kampos), the southern slopes and summit of Mount Ochi, and the Katsaronio plain north of Lykorema and west of Ochi.⁹

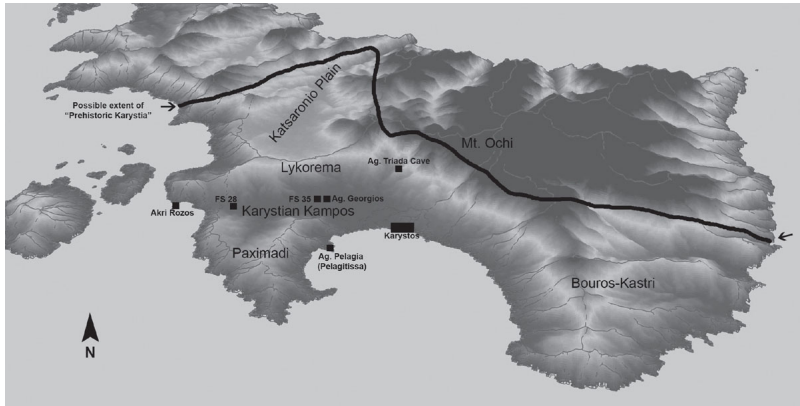


Figure 38.1. The Karystia with sub-regions and locations mentioned in the text.

The mountain ranges located north of this area effectively disconnect the Karystia from the rest of Euboea, as far as prehistoric overland traffic is concerned. These mountainous barriers, although they do not represent an impassable obstacle, make land-based communication between the Karystia and the rest of the island difficult. In the winter months, the mountains and the existing passes are often covered with snow, making communication even more of a challenge. On all other sides, the Karystia is bounded by water. To the west of the Karystia lies the southern end of the Euboean Channel.

From the perspective of geomorphology, geology, and vegetation, the Karystia also differs from the rest of Euboea. It shares the same geological composition with the closest Cycladic islands of Andros and Kea and with South-Eastern Attica.¹⁰ The Karystian landscape resembles more its Cycladic counterparts in

its arid appearance dominated by *phrygana*¹¹ than it does the *paysage* of the areas immediately north of its surrounding mountain ranges, which is much richer in water and, as a result, in vegetation. Finally, but no less significantly, the mountains at the north edge of the Karystia also form a visual barrier for the people who live in the area, as they block not only passage but also create an impenetrable horizon to the north. The view to the south, on the other hand, is uninhibited and on clear days stretches as far into the Cycladic Islands as Kythnos and Tinos and, from high vantage points, even further afield. This results in a psychological effect where one feels one's back turned to the north and facing the south.

Support for the separation of the Karystia from the rest of Euboea is found in archaeology, as well. Based on current evidence, the earliest human activity in the Karystia is datable to the later Neolithic,¹² which is comparable to that in the Cyclades, where earlier habitation seems to have been intermittent.¹³ The evidence for human habitation in the central parts of Euboea reaches at least a millennium earlier, to the beginning of the Neolithic¹⁴ and possibly even earlier than that,¹⁵ although that evidence is somewhat contentious.

The Karystia as I define it here, consists of several geographically distinct sub-regions. They are: the Katsaronian and Karystian Plains, the Paximadi and Bouros-Kastri Peninsulas, and the foothills of Mount Ochi. The Katsaronian and the Karystian Plains, separated by the relatively low Lykorema ridge, contain the bulk of Karystian arable land in the form of thick alluvial deposits, which are at least 3 m deep in some parts of the Kampos.¹⁶ The Karystian Plain, which supplies most of the data for this paper, forms the northern boundary of the Bay of Karystos and has an elongated roughly east-west extent. It separates the Paximadi Peninsula from the Lykorema-Ochi ridge system to the north.¹⁷ In the areas where the plain reaches the Karystian bay the soil is marshy. The plain is well watered by two perennial streams (Rigia

on the west and Megalo on the east) and by many springs scattered around the plain and on its edges.

The Karystia is much more similar to the Cyclades than to the rest of Euboea, but unlike the Cyclades, where arable land and water are hard to come by, the Karystia has plenty of both, especially the former. Moreover, the Karystian arable land is easily accessible, for the most part well-watered, and it is continuous and concentrated, unlike most of the land found in the Cyclades, which is often enclosed in small alluvial valleys.¹⁸ This resource was an important asset during the FN and EBA in a part of the world where arable land is scarce and subsistence was largely based on agriculture.

Material culture

In stylistic terms, the FN assemblage from the Karystia is usually associated with the Attica-Kephala cultural circle. Pottery is characterised by forms such as barrel-shaped pithoi with rope decoration, bowls with spreading sides and thinned lips or rounded bowls, both of which can sometimes be footed. There is a variety of handles or lugs, most of them simple and circular in section. The so-called “elephant lugs” are present in the assemblage, but are not very common. There are also remains of the characteristic FN scoops, although most of the known examples from Southern Euboea come from a recent excavation at the Ayia Triada Cave, a potentially ritual context. The FN vessels are most often left undecorated, but they are sometimes burnished, sometimes to a highly lustrous, red-burnished surface. When decorated, most vessels, in descending order of frequency, bear incisions or grooves, plastic decoration in the form of applied ridges or knobs, and decoration formed by selective burnishing (so-called “pattern-burnished”). There are also a very few small fragments bearing painted “crusted” decoration and two sherds whose incised and punctuated decoration is filled with whitish paste.¹⁹

There are indications, albeit only from the Ayia Triada Cave, of the pre-FN presence of people in the area, associated with the light-on-dark (“Saliagos”) decorated pottery horizon.²⁰ Unfortunately, none of the surveys conducted in the area produced evidence for settlements related to this period and Ayia Triada is not suitable for prolonged habitation due to its dampness, darkness, and the absence of a suitably large space. There are only very tenuous indications of EB I materials in the area, although the EB II sub-phase is well-represented. Three EB II sites have been excavated (Ayios Georgios in the Kampos, Pelagitissa on the Paximadi Peninsula, and the Ayia Triada Cave), the last of which produced evidence of EB II burials.

The Karystian Plain (Kampos) survey

This paper finds its principal inspiration in the results of the Karystian Kampos survey. The project was organised as an intensive pedestrian sampling survey of the section of the Kampos not covered by D. Keller’s dissertation survey²¹ or the Paximadi survey (Fig. 38.2).²² The survey was conducted by an international team of volunteers who walked the plain according to predetermined transects spaced 10 m apart, assuring maximum coverage. In addition, specially selected transects were surveyed along the plain’s main thoroughfares and three arbitrary long transects that covered the boundaries of the selected survey area, which are also the boundaries of the Karystian Plain. Approximately 50% of the Kampos was covered by the survey. We based our choice of survey target areas on several criteria: the geomorphological profile of the area, proximity of water sources, proximity to previously known archaeological sites, proximity or distance to past and present thoroughfares, history of recent soil disturbance, cultivated or uncultivated soils, and so on. Our goal was to sample all possible variations in landscape morphology and the proximity to resources in the plain, while keeping in mind what is known about the archaeological remains in the region and

their most common geographical locations.

Aside from a number of sites dated to post-prehistoric periods, the survey located 15 sites (referred to as “findspots”, or FS²³) that contained prehistoric material, whether alone or mixed with material from other periods.²⁴ Based on the situation as known elsewhere in the Karystia, we did expect to find evidence for prehistoric habitation in the plain. However, the prehistoric evidence from the Kampos did not fit the expected pattern.

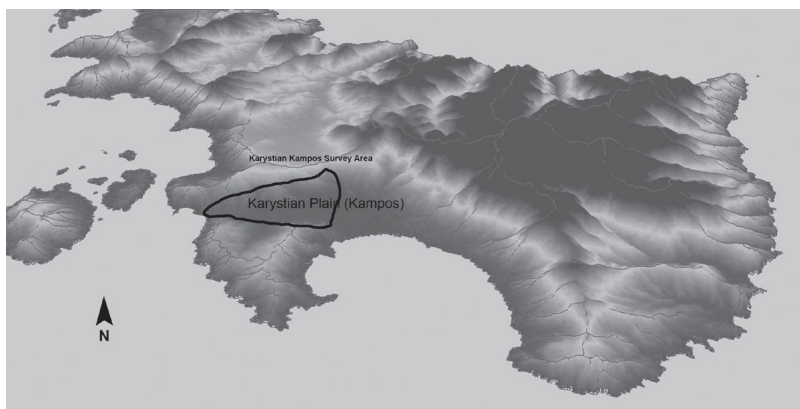


Figure 38.2. The Kampos survey target area in the Karystian Plain (the Kampos).

All prehistoric findspots in the Kampos consist almost exclusively of surface lithic scatters, although we did collect post-prehistoric pottery from some of them. Expectedly, the lithics in question are overwhelmingly obsidian (more than 98%), as Southern Euboea falls within the zone around the island of Melos, its primary source, where obsidian is the principal material of choice for making chipped stone tools. The scatters differ in both composition and size – some consist of only tens of objects, while others produced several thousands (e.g. FS 35); some assemblages include cores in various stages of reduction (e.g. FS 28), while others have very little evidence for *in situ* tool production (e.g. FS 35). Unexpectedly, the one thing all these findspots do have in common is an almost complete absence of prehistoric pottery. On

the surface of some findspots we collected a number of miniature (smaller than 1 cm) ceramic fragments, but even such mini-sherds are scarce, even at those findspots that are located close to known prehistoric sites with well-preserved pottery (e.g. FS 35 was found *ca.* 100 m west from the EBA Ayios Georgios). Moreover, prehistoric ceramics are very scarce in the Kampos, even outside of the findspots. We found and collected only eight fragments of diagnostic prehistoric pottery (mostly dated to the EBA) during the entire survey. To be sure, there are a number of pottery sherds that *could* be prehistoric, based on their fabric and general macroscopic appearance; however, there is no conclusive evidence to confirm or refute their prehistoric chronological designation. Even if we accept that all potentially prehistoric pottery sherds are, in fact, prehistoric, that would bring the total number of sherds to 88, which is still a very restricted number for an area with well-established prehistoric habitation.²⁵

The problem with lithic scatters that contain no other archaeological material, even with large ones like FS 35, is that they are difficult to date. Chipped stone tools from FN and EBA contexts are difficult to differentiate, especially in the absence of a statistically significant and contextualised sample.²⁶ Findspot 35 is considered to likely be EB II in date, largely based on its (probably not coincidental) proximity to the Ayios Georgios site. Another indication is that FS 35 lacks evidence of *in situ* core reduction or tool production, while the nearby Ayios Georgios has a well-defined and almost complete *chaîne opératoire*. In this respect, the two sites complement each other. Hence, at the moment we tentatively consider the possibility that FS 35 represents a specialised workshop of some kind associated with Ayios Georgios, a residential site. Additional supportive evidence for FS 35's interpretation as the location of specialised activity (although not necessarily for its connection to or synchronicity with Ayios Georgios) is provided by the composition of the lithics assemblage collected from its surface. It contains an unusually (especially

compared to other assemblages in the Karystia) high percentage of notched tools, which are tools commonly associated with the working of soft materials (e.g. leather, wood, bone).²⁷

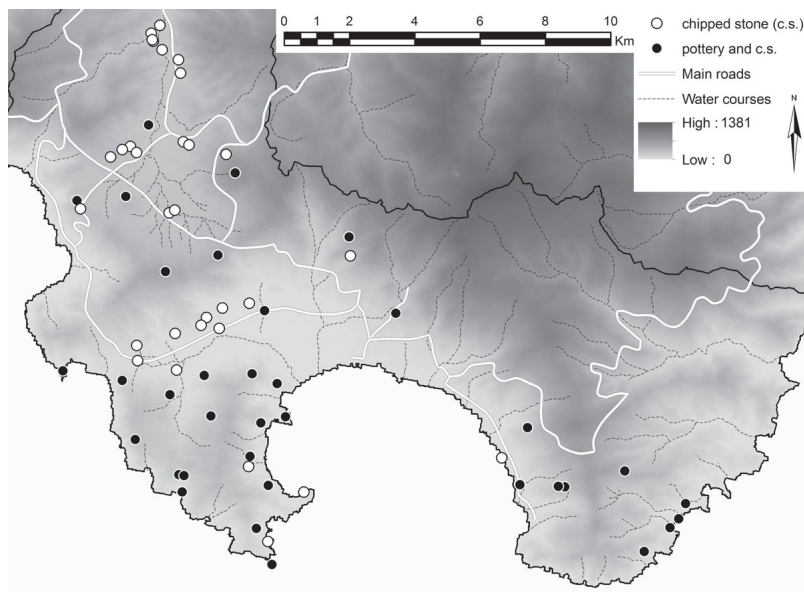


Figure 38.3. The location of lithics only versus lithics and pottery findspots (sites) in the Karystia (M. Katsianis).

Interpreting other similar findspots in the Kampos is even more difficult. They seem to be self-contained in the sense that there are no other prehistoric sites in their vicinity. These lithic scatters can be found on all types of terrain. At the same time, they are atypical for the region, where prehistoric – especially FN – sites with both lithics and pottery (and sometimes architectural remains) are the norm.²⁸ The absence of ceramics in the Kampos is difficult to explain in any other way than as evidence that represents an actual situation that existed in the past. For example, if erosion were the reason behind the absence of pottery, it would have affected both lithics and pottery equally; if anything, the lithics, being usually lighter, would have been even more affected than pottery. The presence of soils unsuitable for pottery

preservation is another potential culprit. However, pottery from the excavated site of Ayios Georgios does not show any signs of damage and, in fact, is quite well preserved. Prehistoric (or, for that matter, historic) pottery found elsewhere in the Karystia, whether on the surface or from excavated contexts, does not show any signs of being affected by the pH value or other property of the local soils, either. To be sure, much of the ceramics found on the surface is weathered, but not completely destroyed. There is nothing to indicate that agricultural activities in the Kampos destroyed, moved, or fragmented prehistoric pottery, although those effects would not be easy to detect. Hence, I think that we can, at least tentatively, consider the absence of pottery to not be the result of post-depositional processes.

Hypothesis

How can we, then, interpret the lithics-only sites from the Karystian Plain? When we plot on a map all sites from the area dated to the FN–EBA, we see that a pattern emerges (Fig. 38.3).²⁹ There is a clear, albeit not absolute, difference in the distribution between the findspots with a “common” assemblage composition, which includes both lithics and ceramics, and the ones that produced exclusively or almost exclusively lithics. It seems that almost all of the lithics-only findspots are concentrated in the Kampos area, with a similar pattern observable in the Katsaronio, too.

Moreover, the pattern of FN/EB ceramics and lithics sites coincides with non-prime agricultural land, *e.g.* the foothills to the south and north and the Paximadi, which is currently an agriculturally marginal area, in all but one instance. EB II Ayios Georgios is the only substantial site in the Kampos. There are no comparable FN sites in the Kampos. This pattern seems to indicate that the area of the Kampos was intentionally left free of large-scale or any other habitation. Things seem to have been somewhat different during the Early Bronze Age, since one large settlement

exists in, practically, the very geographical middle of the Plain.

Leaving swaths of arable land reserved for agricultural activities would not be entirely unusual in and of itself. With agricultural practices of the time, maximisation of yield was a common strategy to offset crop failure and occasional bad years.³⁰ In the nearby Cyclades there is a general scarcity of arable land³¹ and food shortages caused by occasional bad years were probably a common occurrence in communities that were heavily dependent on agriculture as the principal food source.³² The amount of agricultural land in the Karystia, however, was much more than sufficient to feed its projected FN and EBA populations.

C. Broodbank,³³ following J. Cherry's work based on Melian data,³⁴ suggests that a safe estimate for Cycladic populations is "in the order of 0.5–1.5 [people]/sq km for EB I and 1.5–3.0/sq km for EB II" with the "overall figures [for the Neolithic] probably lower than in the EBA."³⁵ Based on the strength of the Neolithic evidence, coming principally from Thessaly, "the combined annual consumption of cereals and pulses may have been in the vicinity of 200 kg per head."³⁶ At the same time, the estimated cereal yields per hectare could have been as high as 800–1000 kg while the yields of pulses would have been comparable to that figure "judging by the general comparability of pulse and cereal yields under a traditional dry-farming regime in the arid east of Turkey."³⁷

Based on these estimates, the prehistoric population in the Karystia probably numbered at least 720 people at any given time. Those people would have required about 180 ha of arable land (i.e. approximately 144 metric tons of produce) to support their diet, even if it was *exclusively* based on agricultural products. This, however, is unlikely, since at least part of their diet included meat and dairy products, for which there is ample evidence. In addition, although evidence for this is slim, the use of wild terrestrial (e.g. fruits, nuts, hunting, etc.) and marine (e.g., fish and shellfish) resources should not be entirely discounted. Of ca. 240 sq km in

the Karystia at least 13% (approximately 3000 ha) consists of land that is agriculturally viable without terracing and other kinds of mechanical improvements. Even if we double or triple the estimated population numbers, still only a small fraction of the entire arable land in the Karystia, or even the Kampos alone (approximately 1500 ha), is needed to support it.

If all of the Kampos was “reserved” for agriculture and intentionally left free of major habitation, as I suggest here, and especially if its resources were combined with other large sections of arable land relatively easily available to the prehistoric Karystians (e.g. the Katsaronio Plain), then the generated amounts of agricultural surplus would have been very large, indeed. The question is: why would such large amounts of surplus be needed? These are, in my view, some of the possibilities:

1. *Local storage and consumption.* Bad years were almost certainly a fact of life in the Karystia during the FN/EBA. It would have been prudent to prepare for them by overproducing and storing surplus produce. The problem with this interpretation is that large prehistoric storage facilities have not been identified in the Karystia, thus far. In fact, even remains of large storage vessels (e.g. pithoi and pithoid jars) are scarce during the FN, although this could be the result of the current state of research. Regardless, produce can be stored either in archaeologically invisible ways (e.g. wood-built granaries or wicker baskets) or in the form of secondary (processed) products (e.g. dried fruits, hard dehydrated breads, and such). If this was the case, the storage of surplus could have been done communally or individually, with further implications for political organization of the Karystian communities.

2. *Exchange.* There is no solid evidence to support large-scale food exchange in the prehistoric Aegean, although such evidence would not be easily observable by its very nature. The largest seagoing vessels of the time – the longboats depicted in

FN (Strophilas on Andros³⁸) and EB (e.g. frying pan boats from Chalandriani) contexts – seem to have been ill-suited for transportation of large quantities of goods.³⁹ This, however, does not exclude other means of transportation, for example, several smaller boats strung together and dragged in the wake of the longboats or some similar arrangement. Maritime interaction was likely a fact of life in the prehistoric Karystia and exchangeable agricultural produce would have been a sought-after commodity in the chronically arid and land-deprived Cyclades.

3. *Conspicuous consumption.* The organisation of large-scale communal feasts is well-attested in both ethnographic and archaeological literature.⁴⁰ The feasts are usually connected to specific dates in the ritual/social calendar or to particular important events (e.g. marriages, funerals, rites of passage, important visits, etc.). These events play a cohesive role within a society and serve to strengthen communal or inter-communal ties and contribute to the social storage strategies by cementing friendships and alliances on which individuals and/or communities could rely in times of need.

4. *Labour shortage forcing communal land exploitation.* The cause for this kind of land management arrangement could be to compensate for significant absences of the workforce. For example, during the sailing season, which partially coincides with the agricultural season, most of the male workforce would have been absent for whatever specific reason (e.g. obsidian procurement, socially meaningful interaction and exchange, and so on). Although FN/EBA maritime contacts involved varying degrees of involvement and duration, any voyage to a more distant destination could have taken weeks and likely involved multiple planned and unplanned stops. As a consequence, remaining people from multiple communities would have worked the land together and shared the products even if the land itself was individually owned. These kinds of

communal arrangements are not unusual even in the present day in the Balkans, *e.g. mobas* in parts of former Yugoslavia.

Conclusions

Solid evidence to conclusively prove or disprove any of these scenarios is at the moment missing. For one, the quantity of data from excavation contexts is very limited in the Karystia for both prehistoric phases in question, but more acutely so for the Final Neolithic. This makes it difficult to ascertain the extent to which the area's inhabitants participated in FN and EBA interaction networks. For example, the sheer quantity of obsidian in the area indicates that connections with the Central Cycladic area were regular, if not necessarily frequent. The general stylistic similarity of Karystian material culture to that of adjacent areas also attests to this. Nevertheless, the most interesting implication of the interpretation I argue for here is what it could tell us – or, rather, hint at – about the structure of prehistoric societies in the area.

For example, the absence of any noticeable habitation in the Kampos during the FN could indicate the existence of cooperation among different communities inhabiting the Karystia at that time. The intentional preservation of large sections of arable land surrounded by habitation sites of different sizes likely required some cooperation and mutual agreement.⁴¹ My interpretation of the evidence also has potential implications for understanding land ownership in prehistory. The existence of large-scale communal arable land preserves may indicate communal rather than individual land ownership. It was undoubtedly easier to negotiate joint land access rights on a communal than individual level, because there would have been a smaller number of stakeholders. This would have created free (although not necessarily equal) access to the Kampos resources for the inhabitants of all sizes of known FN settlements in the Karystia. The situation may have changed during the EBA, since there appears to have been one dominant settlement (Ayios Georgios) in

roughly the geographical centre of the Kampos, with two other substantial and likely synchronous settlements (Akri Rozos and Pelagitissa) placed in agriculturally marginal, coastal locations at the plain's edges.

Of course, my interpretation is at the moment a hypothesis. Nevertheless, fieldwork in the scope of the Norwegian Archaeological Survey in the Karystia, focused on the Katsaronio Plain, seems to provide additional supporting evidence, although data analysis is yet to be completed. The patterning of findspots from the Katsaronio appears to be similar to the one in the Kampos, with lithics-only sites generally being located in the plain itself while pottery and lithics sites are placed at the outskirts and in other elevated areas.⁴² Since the survey coverage in the Katsaronio was near to 100% of the target area that encompassed the entire plain, it indicates that the patterning in the Kampos is unlikely to be the result of the sampling strategy employed there.

To summarise, there is tantalising evidence from the Karystian Plain in Southern Euboea that suggests that significant habitation was deliberately avoided in the agriculturally prime areas during the FN and (probably) EB times. This evidence consists of the presence of findspots that consist only of chipped stone with no surface pottery, indicating activity rather than habitation. This pattern is observed only in areas most suitable for agriculture, while sites that are likely to have been habitational (*e.g.* those that contain both pottery and lithics) are located in agriculturally marginal areas (*e.g.* the Paximadi Peninsula or the Lykorema). The same pattern seems to be repeated in the Katsaronio Plain, the other major agricultural area in the Karystia. If this was indeed the case, under the conditions of yield maximisation, large surpluses of agricultural produce would have been created, suitable for exchange and/or conspicuous consumption within or outside the Karystia. Moreover, large quantities of obsidian found in the Karystia testify not only to strong links with the Central Cycladic area (Melos) but also that the Karystia was either a site of massive

consumption of lithic artefacts (consistent with intensive agriculture) or a redistribution centre or, quite possibly, both. If correct, this situation could have implication for our understanding of the socioeconomic and political relations and social structures in the Karystia and, by extension, in the rest of the contemporary Aegean.

The possibility that the pattern from the Kampos is a feature of the investigation methods is diminished by the similar preliminary results from the Katsaronio area of the Karystia. A chance remains, of course, that the evidence we have is the result of other causes. For example, it is possible that not all parts of the Kampos (or the Karystia) were used for agriculture simultaneously and/or that the prehistoric population in the area was much larger than estimated in this paper. Further research might be able to narrow down the list of alternative explanations and refute or confirm the explanation suggested here. For example, a program of geological coring organised by VU Amsterdam is currently underway in the Kampos. When completed it will provide a better understanding of the vegetational and geological history of the area through analysis of sediments and pollen.⁴³ Regardless, the available data speak rather vocally about the existence of a dynamic FN and EBA community of people inhabiting, structuring, and sharing the landscape in this section of the Aegean.

Notes

1 The research on which this paper is based was conducted with permits from the Canadian Institute in Greece and the Norwegian Institute at Athens; I am thankful to both those institutions for their support. My deepest gratitude is owed to the Edward A. Schrader Endowment Fund at Indiana University, the Institute for Aegean Prehistory (INSTAP), and the Norwegian Institute at Athens for their financial support. Without assistance from members of the Ephorate of Antiquities of Euboea (the former 11th EPKA) my research would not have been possible, with special thanks to the late M. Kosma for her tireless work in Southern Euboea. I would

also like to thank my fellow “Communities in Transition” conference organisers and K.D. Vitelli for providing useful comments on earlier drafts of this paper. Naturally, all errors contained therein remain exclusively my own.

2 The survey of the Karystian Kampos was conducted under the aegis of the Canadian Institute in Greece. The Katsaronio survey is officially known as the “Norwegian Archaeological Survey in the Karystia” (NASK) and was conducted between 2012 and 2016 under the aegis of the Norwegian Institute at Athens.

3 Sackett *et al.* 1966.

4 Theocharis 1959.

5 Sampson 1980.

6 *e.g.* Cullen *et al.* 2013; Tankosić 2011.

7 Mavridis and Tankosić 2009.

8 Cullen *et al.* 2013. A team from the VU Amsterdam is currently conducting excavations on the Plakari Hill that, although focused on Geometric strata, are also producing copious FN material (*e.g.* Crielaard *et al.* 2013 and annual Plakari project reports at <http://www.plakariproject.com/>).

9 Tankosić 2011; Tankosić 2017.

10 De Paepe 1982.

11 *Phrygana* or *garrigue* is a type of vegetation typical for arid Mediterranean landscapes that consists of low-lying, soft-leaved and often thorny shrubs and bushes.

12 Mavridis and Tankosić 2009, 52–3.

13 *e.g.* Evans and Renfrew 1968; Sampson 2008d.

14 Sampson (ed.) 2006, 145–6.

15 *e.g.* Sarantea-Micha 1980; Sarantea-Micha 1985; Sarantea-Micha 1986; Sarantea-Micha 1996.

16 Keller 1985, 58.

17 Keller 1985, 58.

18 *e.g.* Broodbank 2000, 73.

19 Mavridis and Tankosić 2016; Tankosić 2011, 109–19 for a summary.

20 Mavridis and Tankosić 2009; Mavridis and Tankosić 2016.

21 Keller 1985.

22 Cullen *et al.* 2013.

23 Any concentration of more than 10 fragments of pottery and 5

fragments of lithics within a 40 x 40 m area was arbitrarily considered a findspot, *i.e.*, the evidence of consistent or recurring past activity.

24 *e.g.* Tankosić and Chidioglou 2010.

25 *e.g.* Cullen *et al.* 2013; Keller 1985; J. Wickens pers. comm.

26 W. Parkinson pers. comm.

27 W. Parkinson pers. comm.

28 *e.g.* Cullen *et al.* 2013; Keller 1985; Mavridis and Tankosić 2009.

29 *cf.* Tankosić and Katsianis 2015.

30 Halstead 1989.

31 There is currently no solid evidence that agricultural terracing existed this early in prehistory. The earliest Aegean evidence for terracing dates to the Middle Bronze Age (French and Whitelaw 1999).

32 Broodbank 2000, 76–8.

33 Broodbank 2000, 88.

34 Cherry 1979, 37–43.

35 Broodbank 2000, 87.

36 Halstead 1981, 317.

37 Halstead 1981, 317–8.

38 Televantou 2008 and this volume.

39 Broodbank 1989; Broodbank 1993.

40 *e.g.* Dietler and Hayden (eds) 2001.

41 *Contra* Runnels *et al.* 2009, who interpret similar gaps in habitation in Thessaly as a form of no-man's-land between communities in the situation of frequent conflict and warfare.

42 Tankosić and Katsianis 2015.

43 S. Kluiving pers. comm.

The Late Neolithic cultures of the Aegean archipelago with special reference to the Cyclades: Connecting strategies of space use.

*Fanis Mavridis*¹

Introduction

Neolithic island cultures have traditionally been seen as a distinctive phenomenon with specific characteristics.² Traditional approaches have studied insular cultures within what was generally believed to be a closed and bounded system of their environment,³ and only in rare cases have they been studied within their broader context, which can be historical, social or ideological. Islands were seen as laboratories where the evolution of species could be studied without external influences,⁴ an approach that was also widely adopted in archaeological and anthropological work.⁵ The idea of isolation also informed the way early explorers interpreted exotic islands they visited. They were seen as closed and isolated spaces inhabited by people unable to maintain contacts with the external world.⁶ Islanders were defined in relation to the dominant places and societies of their time as a journey between the familiar and the unknown, the internal and the external, the social and the savage.⁷

In this respect, the study of early island cultures in the Aegean⁸ needs to be approached in a more systematic way on the basis of

the wider context to which they belonged. This approach is especially important for the phases considered in this volume, more or less representing social realities undergoing transformation and negotiation.⁹ The evidence presented in this paper demonstrates that island and mainland sites of the Late Neolithic share common characteristics including a tendency towards the wider use of marginal environments such as seascapes and caves.

Marginality in the Late Neolithic

During the Late Neolithic I–II,¹⁰ important changes have been identified in the use and meaning of material culture together with inter- and intra-site space as compared to previous phases. As some scholars have shown, there was a general preference for the use of marginal environments in arid or semi-arid areas in Southern Greece.¹¹ This is a general phenomenon that includes island settings as well as caves mainly situated in upland locations. It has been suggested that in the Peloponnese there was a shift in the percentage of cave use from 15–20% (during the Early and Middle Neolithic) to 56% (during the Late Neolithic I), tapering to 42% during the Late Neolithic II, while during the Early Bronze Age I and II there was a substantial decrease in the use of caves.¹² This picture seems to be confirmed in Attica as well,¹³ while absolute dating from cave sites indicates intensive use mainly in an advance phase of the Late Neolithic I.¹⁴ This phenomenon has been attributed by several scholars to specialised economic practices (e.g. transhumant economy and systematic exploitation of the secondary products of animals).¹⁵ However, if one takes into consideration the overall picture emerging from archaeological data which shows the extensive use of seascapes during the Late Neolithic, as well as major changes in the production, circulation, consumption and deposition of material culture, one cannot but acknowledge that wider transformations were taking place in the socio-economic, ideological and symbolic

domains.¹⁶

Archaeological evidence from the Aegean islands confirms these changing patterns. Based on the relevant literature published before 2009, I collected data for 479 Stone Age sites (Palaeolithic–Mesolithic–Neolithic) situated on the Aegean islands.¹⁷ The majority of these sites (175) are concentrated in the Dodecanese, followed by the Cyclades (137), North-East Aegean islands (84), Sporades (46), the Argosaronic Gulf (23) and the North Aegean (14) (Fig. 39.1). These numbers are directly related to geographical parameters and the intensity and general character of archaeological research; it is not coincidental that intensive surveys have mainly taken place in the Dodecanese and the Cyclades.¹⁸ The majority of sites recorded (169) are those identified by a few objects only, such as stone axes, or chipped stone scatters for which precise dating is problematic or is generally uncertain. The number of Late Neolithic sites (117) is more or less similar to the number identified as Final Neolithic (129); relatively large is the number of probable pre-Neolithic sites (46), while the numbers sharply decrease for sites dating to the Early and Middle Neolithic (Fig. 39.2).¹⁹ It should be noted that about 70 caves are included among the recorded sites, a number that indicates a parallel phenomenon of increased cave use during the Late Neolithic in both mainland and island settings. Though these data clearly give a general framework, they do not allow for a detailed consideration of the different categorizations and chronological schemes used by various scholars, to test, for example, what exactly the characteristics are for the Late Neolithic I or II.

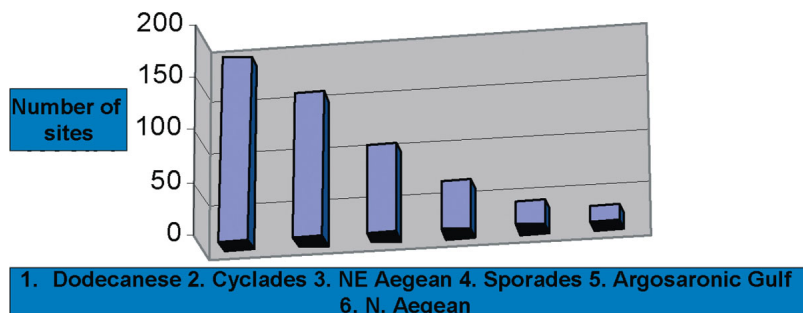


Figure 39.1. Number of known Stone Age sites from the Aegean islands. Data from Mavridis 2007 (2009).

Given this evidence, seascapes and cave use during the Late Neolithic I–II cannot but be considered as part of the same reality, especially if one closely examines other aspects of the use of space (type of settlements, specific architectural elements, and depositional practices). There are strong indications for the use of common strategies in both mainland areas and island settings (see below).

Island settlements have traditionally been considered as small in size with a limited number of occupants (Table 39.1).²⁰ Some scholars identify specific categories of settlements according to their size: 1) small agricultural habitation areas with one or two households; 2) middle-sized settlements containing up to 10 households and a population of about 11–50 individuals; and 3) large settlements with over 10 households and 51–300 individuals.²¹ In general, it is considered that settlement density on the islands during the Neolithic was low, approximately 4 sites per 1000 square kilometres,²² or even less according to some views.²³ On the basis of the evidence from the survey conducted on the island of Melos, the picture emerging is that of small, ephemeral hamlets without architectural traces, while only two of the detected sites provide a substantial amount of archaeological remains scattered on the surface over a wide area.²⁴ Recent evidence suggests that the numbers might be higher for the Late Neolithic II (especially LN IIB).²⁵ A population estimate of sites

dating to the Saliagos phase gives a range between 75–150 individuals, with duration of use between 200 and 400 years, during which thick habitation debris accumulated.²⁶ Excavations at sites such as Ftelia on Mykonos and Strofilas on Andros give a good idea for the character of the intra-site space.²⁷

Sites of specialised character have also been identified, such as mines in the Cyclades,²⁸ sites of specialised activities dating to the Saliagos phase in the Cyclades again,²⁹ a possible specialised camp on Thasos,³⁰ etc.

Connected strategies of space use

The case of flat extended settlements

All Late Neolithic island sites known thus far show a horizontal relocation of archaeological remains and are, therefore, of the extended type. Sites such as Emborio on the island of Chios³¹ and Limenaria on the island of Thasos are of this type.³² The presence of tell settlements has been reported on the island of Imbros,³³ however they seem to be of a later date.³⁴ Excavations at Mikro Vouni on Samothrace indicate the presence of thick archaeological deposits.³⁵

Flat extended settlements are present on the mainland as well, for example in the Arapi phase in Thessaly³⁶ and even earlier.³⁷ In Southern Greece, Nea Makri is another characteristic example of a flat extended settlement. The connections between the site of Nea Makri and those on the Aegean islands are not coincidental.³⁸ Flat extended settlements have also been compared with sites of the Central Balkan Vinča culture.³⁹

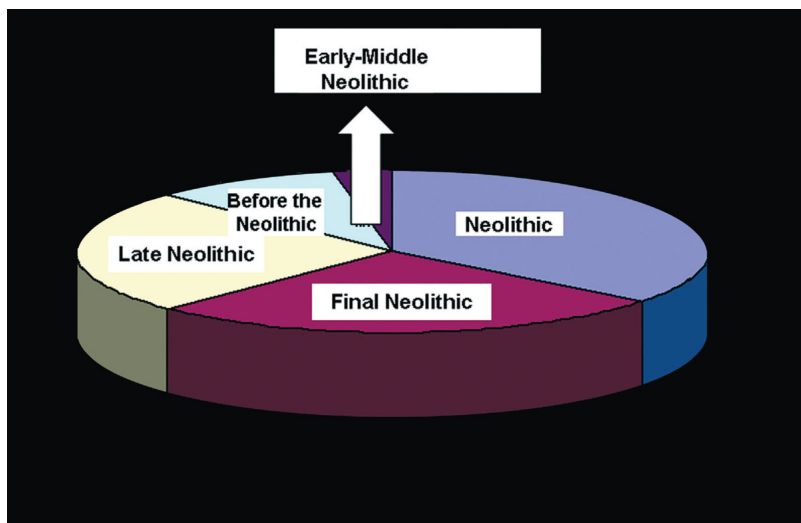


Figure 39.2. Chronological groups of Stone Age sites from the Aegean islands. Data from Mavridis 2007 (2009).

Another characteristic element common to most Neolithic island sites excavated thus far is the evidence of thick deposits.⁴⁰ Ftelia on Mykonos, for example, is characterised by the intensive use of a single spot with horizontal re-location of buildings in a rather sparse arrangement.⁴¹ The presence of thick deposits formed by the accumulation of a large amount of material is well known from mainland sites as well (for example at Sesklo the thickness of deposits is 4 m, 3.5 m at Vasilika and 2.5 m at Thermi). Similarities can be recognized in cave sites used during the Late Neolithic, especially during the second half of the 5th millennium BC.⁴² For example, at the Tharrounia Cave on Euboea 25,000 sherds were found in one trench of which 1100–700 come from a single layer dating to this phase.⁴³ Also at the site of Pangali on Mount Varassova, Aitolokarnania, 60 kg of pottery (a total of 2483 pieces) was found in a single trench measuring $2 \times 2 \times 1$ m.⁴⁴

It has generally been pointed out that archaeological remains within and on the perimeter of sites found in specific contexts⁴⁵

are related to the socialisation of space. A series of studies has clearly shown the different ideologies regarding the use of space reflected by tell and extended settlement types.⁴⁶ It is exactly these symbolic and ideological differences⁴⁷ that explain why extended settlements were developed during the Late Neolithic for the foundation of new sites on the Aegean islands, and tell sites were not. Tells can therefore be considered a mainland Greek phenomenon and were not developed in island settings, at least according to the current evidence.⁴⁸ Tell settlements are thought to characterize the continuity of habitation in one spot and the stable presence of a group in this location; links with these locations were declared in specific ways.⁴⁹ Tell settlements, with their monumentality expressing a collective continuity, emphasise the ancestral past upon which individual households were ideologically based.⁵⁰ In contrast, for flat extended settlements such as Makriyalos in Pieria, it has been suggested that social cohesion was achieved through an emphasis on ritual activities or communal practices.⁵¹ It is becoming gradually evident that differences between tell and flat extended settlements reflect distinctions in the structure and the construction of social reality⁵² and that the presence of extended sites on the Aegean islands is directly related to specific ideologies regarding the use of space by the newcomers.

Based on what has been said so far and assuming that most archaeologists accept the structural and symbolic differences reflected by the two settlement types, it is possible that flat extended settlements provided a more flexible relationship with the landscape.⁵³ This relationship was not necessarily based on continuous habitation in the same location, but rather specific practices were developed that played a role in structuring and socialising space (e.g. deposition of material remains in specific contexts, pits, intensive habitation of sites, *etc.*).⁵⁴

Therefore, the changing pattern of seascape use during the Late Neolithic, in contrast to previous phases, is a phenomenon directly

related to ideologies and attitudes already present in mainland regions, and indicates common strategies and a wider pattern of ideas and practices regarding space.

Table 39.1. Examples mainly of Neolithic Cycladic sites with date and estimated population and size.

<i>Site</i>	<i>Population</i>	<i>Size (sq m)</i>	<i>Date</i>	<i>Reference</i>
1) rural installation	1) 5–10 individuals	Typical size 10,000	LNI–II	Broodbank 2000, 86.
2) middle-sized site	2) 11–50 individuals			
3) large settlements	3) 51–300 individuals			
Ftelia	150–200 inhabitants	6500	LNI	Sampson 2002
Mikro Vouini	400–600 inhabitants	10,000	LNI–II/EBA	Matsas 1984, 74
Paouras		17,500–20,000	LNI–II	Nowicki 2002, 69
Stous Dekatesseriis		25,000	LN–ECI	Renfrew and Wagstaff 1982
Vani		1000	LNI	Renfrew and Wagstaff 1982
Platenia		90,000	FN/ECI	Renfrew and Wagstaff 1982
Areti		15,000	NL/ECI	Renfrew and Wagstaff 1982
Mandrakas		10,000	NL/ECI	Renfrew and Wagstaff 1982
Kalogeros		1000	NL/ECI	Renfrew and Wagstaff 1982
Korkia		1000	LNI	Renfrew and Wagstaff 1982
Koufi		28,000	LNI	Renfrew and Wagstaff 1982
Demenagaki		3000	FN–ECI	Renfrew and Wagstaff 1982
Agios Theodoros		10,000	FN–ECI	Renfrew and Wagstaff 1982
Soleta		7000	LN	Renfrew and Wagstaff 1982
Trion Ierarchon		2000	LN/ECI	Renfrew and Wagstaff 1982
Favas		20,000	LN	Renfrew and Wagstaff 1982
Argilia		69,000	LN	Cherry and Torrence 1982
Kephala	10–15 or 35–50 individuals	22,000	LNII	Whitelaw 1991, 200 Coleman 1977, 44

Specific architectural features and depositional practices

In addition to the similarities observed between mainland and island extended type settlements, particular architectural and other features strengthen these associations. Walls,⁵⁵ apsidal and megaroid buildings,⁵⁶ subterranean rooms or cellars,⁵⁷ circular silos⁵⁸ as well as the use of pits or other deposits of specialised character⁵⁹ are present in mainland and island sites.

In the case of Ftelia on the island of Mykonos, buildings of specialized character have been identified on the basis of the finds discovered inside (e.g. concentration of polychrome pottery).⁶⁰ The Late Neolithic II settlement of Strofilas on Andros represents a unique case. A 1 m deep pit deposit was found to contain a large amount of material from a previous settlement phase of the Late Neolithic II, consisting of building debris together with evidence of burned soil.⁶¹ This pit partly continues outside the walls of the

settlement where a figurine was also found.⁶² It is important to note that most of the finds were detected below the habitation floors of the buildings.⁶³

This evidence is of particular importance as it relates to the significance of pits in Northern Greek and Balkan sites and also to depositions or concentrations of material remains in other contexts (for example, below habitation floors or in caves).⁶⁴ Pits in flat extended settlements play an important role in the broader construction of social space in other parts of Greece as well.⁶⁵

For example, in a settlement at the Grammi location in Macedonia, 28 pits were found, some preserving a rim; the walls of others were coated, while in some cases the pits were sealed with stones or mud.⁶⁶ At Asprovalta, a large number of pits were discovered that were used in various ways, indicated by their contents and their typological characteristics.⁶⁷ At Kremasti in Kozani a system of three pits was found at the only possible access to the site; there were no other buildings in the vicinity and the pits were separated from each other by narrow stone-built walls.⁶⁸ At another site in the Prefecture of Kastoria, pits were found containing building remains, a practice usually connected in the Balkan Neolithic with the construction of new houses.⁶⁹ In Thermi, Thessaloniki, pits were found containing large fragments of pots and various small items, while others contained bones, especially from cattle, or stone tools.⁷⁰ In the case of Makryalos in Pieria, it has been suggested that material was intentionally placed in pits, especially for the pits of phase I, in which large quantities of sherds and animal bones were detected. This material likely came from the entire settlement and was moreover deposited during a short period of time, judging from the bones.⁷¹

In addition to the evidence from the Kephala cemetery where artefacts were discovered in the fill of the tombs,⁷² the presence of pottery not only in the graves themselves but also in close association is known from several Early Cycladic cemeteries, such as Kato Akrotiri on Amorgos, Ayious Anargirous on Naxos and

Ayios Kosmas in Attica.⁷³ In the case of the Tsepi cemetery in Attica, pots were deposited inside a pit and deliberately smashed.⁷⁴ It seems therefore that the intentional deposition of material remains at Late Neolithic extended-type sites is of particular significance.

Caves do not present an exception to the overall picture. The systematic study of material remains from several cave sites such as the Lion's Cave, Attica,⁷⁵ Tharrounia Cave on Euboea,⁷⁶ Sarakenos Cave in Boeotia,⁷⁷ Cyclops Cave in the Sporades,⁷⁸ Ayia Triada Cave at Karystos⁷⁹ and Drakaina Cave on Kephallonia,⁸⁰ among other examples, produces evidence of a complex relationship between Neolithic people and caves, evidenced through associations of material culture, depositional practices, structures inside caves, *etc.*⁸¹

It has been suggested that social norms are reflected in the ways in which material remains are intentionally deposited in the ground.⁸² Among such practices are those associated with ancestors, the ritual killing of objects through the process of discard, household pits containing human and animal remains, foundation or other kinds of offerings, and, finally, the intentional breakage of objects denoting the end of the lifespan of a material culture assemblage.⁸³ In the case of Late Neolithic island settlements, these practices could be a means of connecting newcomers with space, since their memory and experience of the location were not yet established. Burial of items can be construed as equivalent to the burial of individuals, representing in both cases a common ancestral past,⁸⁴ which needed to be re-created and the space to be (re)socialised.⁸⁵

The settlement of Strofilas on Andros supports the hypothesis that practices such as those described above functioned as a means of connecting people with the landscape. The presence of a specific ideological and symbolic system may be indicated. The archaeological evidence reflects a well-established way of life and a strategy of social production and re-production of an ideological

and symbolic system undergoing a process of expansion in the Aegean seascapes (see below).

In opposition to the monumentality of tell settlements, flat extended sites were a more expansive and fluid settlement system, perhaps creating ties and networks between different settlements, and providing a means of structuring and controlling space⁸⁶ without having been permanently present in the area before.

Island settlements of the Late Neolithic do not therefore represent an independent phenomenon. It may even be claimed that what was ideologically represented by the flat extended settlements, in contrast to tell sites, facilitated, in a way, the foundation of new settlements in seascapes. The presence of many sites on the Aegean islands during the Late Neolithic is the result of broader changes in the use of space as well as the use and meaning of material culture.

Conclusions: Strategies of space use and marginal environments

Shifts in the use of space during the Late Neolithic are directly related to the overall changes seen in all aspects of the socio-economic reality. Sites on the Aegean islands were disconnected from the ideological message of mainland tell settlements⁸⁷ related with their inhabitants' ancestral past.⁸⁸ Therefore, new social dynamics were developed which gave the opportunity to specific groups or individuals to re-negotiate their social role and status in both mainland and island regions. It seems probable that the flat extended settlements better reflected these new ideas and attitudes towards space. This type of site was transmitted to the islands, since it provided the ideological and symbolic means by which people could connect to a new location. In the flat extended settlement of Makriyalos it has been suggested that an emphasis on social cohesion, social production and reproduction was achieved through the symbolic/ritual or communal practices of the living.⁸⁹ The same seems to be true for island settlements of

the Late Neolithic. A generalised phenomenon apparent in the Late Neolithic Aegean is the human expansion to marginal regions together with a new emphasis on activities that took place outside traditional settlement space. In the Late Neolithic IB–II, burials in cemeteries, the increased importance of hunting and – possibly – warfare, together with the intensive use of caves, may also reflect these changes. Marginal environments such as upland locations, caves and seascapes that may earlier have appeared distant or unfamiliar seem now to be of particular importance. Material culture played a new role and seems to have been used in specific ways for the construction of social space. It is not coincidental that metal artefacts are present in areas with “new histories”.⁹⁰ Archaeological evidence from the Balkans and other regions indicate that these changes represent a general phenomenon.⁹¹

The settlement of Strofilas on the island of Andros will be further discussed here since it is of importance not only for understanding the use of space and the nature of the expansion into seascapes during the Late Neolithic, but also for understanding aspects of continuity between the Neolithic and Early Cycladic periods, and how the specific characteristics of the latter cultural group were developed.

In addition to pits and deposits below floors, other features at Strofilas, such as rock-carvings on the walls and the bedrock of the settlement are of particular significance. Rock-carvings appear on other Cycladic islands as well, possibly implying a broader importance.⁹² Evidence from Strofilas indicates a strong connection between Late Neolithic II and the Early Bronze Age.⁹³ The association of frying pans with ring shaped pendants,⁹⁴ the depiction of the sea (spirals), ships, and fish are all part of a symbolic language and an ideology related to the sea, seafaring activities and possibly the expansion to new territories. Thus, aspects of the ideological and symbolic background of the process of seascape expansion may be evident at Strofilas. This process, which was initially oriented towards the Cyclades or was created

on the islands themselves during the Neolithic, was later, during the Early Bronze Age, transformed into a successful way of life.⁹⁵ If one takes into consideration the seafaring activities and the characteristics of Early Bronze Age Cycladic culture, it is possible to conclude that this expansion process continued, this time from the Cyclades outward toward the rest of the Aegean.⁹⁶ This may help explain why Early Bronze Age Cycladic material remains are easily identifiable within other contexts, leading several scholars to identify colonies or strong Cycladic influences at several sites and regions.⁹⁷ At least some of the particular characteristics of the Early Cycladic culture cannot but be considered as coming from the Cycladic Neolithic tradition. It presents a unique example of an island culture transformed by a process of establishment and adjustment to seascapes during the Late Neolithic, which leads to a still-expanding successful way of life in the Early Bronze Age.⁹⁸ Islands of the Central Aegean, therefore, represent an ideological/symbolic system and a way of life where social cohesion and its (re)construction are based on a system of seafaring activities and further expansion.

The Cycladic culture presents a unique continuity between the Late Neolithic and the Early Bronze populations,⁹⁹ comprising traditions that were transformed according to the particular needs of each period. Beyond the case of Strofilas, earlier sites of the Saliagos culture bear evidence of elements that are generally considered late (e.g. cheese pots, crusted ware) before the beginning of Late Neolithic II, indicating that the Late Neolithic Saliagos phase should no longer be considered very distant from the Kephala horizon.¹⁰⁰ It is possible that the differences observed between the sites of the Saliagos culture (compare for example Saliagos and Ftelia) are related to the different traditions present on the islands, the ways that outside influences were consumed and incorporated in each context, as well as to possible chronological differences.

It is gradually becoming evident that the foundation of new

settlements on the islands during the Late Neolithic¹⁰¹ is not an independent phenomenon but one that is related to or even the result of the wider historical context of their time. This context includes transformations and changing ideas regarding the use and meaning of space and material culture. It is a period during which social space is re-created, influencing mobility patterns, and marginal regions become arenas where new social dynamics are negotiating their role in a changing world.¹⁰²

Notes

¹ I would like to thank Dr K. Nowicki for reading the text and making useful comments, and my friends and colleagues Dr Ž. Tankosić and Mr D. Lambropoulos for their overall help and support.

² McArthur and Wilson 1967.

³ See for example, Held 1992; Held 1993; Keegan and Diamond 1987, 58–65; Patton 1996, 19; Strasser 1992, 100–3.

⁴ Diamond 1977a; Diamond 1997b; McArthur 1972; Simberloff 1974; Williamson 1981.

⁵ See for example, Cherry 1981; Evans 1973; Evans 1977; Fitzhugh and Hunt 1997, 379; Fosberg 1963; Kirch 1986; Terrel 1986; Terrel 1997, 420–1; Vayda and Rappaport 1963.

⁶ Kohn 2002, 40.

⁷ Mckechie 2002, 128.

⁸ Crete is not included in the present analysis.

⁹ Mavridis *et al.* 2012; Mavridis 2016; Mavridis forthcoming a, b.

¹⁰ For the terminology used in this text, see Sampson *et al.* 1999. Also Coleman 1992; Coleman this volume; Mavridis 2006, 117–18, 133; Mavridis 2010; Mavridis and Tankosic 2016; Nowicki 2002; Nowicki this volume.

¹¹ Halstead 1984; Halstead 1994, 211; Halstead 1995, 14; Halstead 1996 a; Halstead 1996b; Halstead 2000, 617; Wartrous 1982, 2; Whitelaw 2000, 140. This is not necessarily a phenomenon of the 4th millennium BC (Whitelaw 2000, 145), since important changes in the use of space are evident during the 5th millennium BC as well, see for example Mavridis 2006; Mavridis 2016; Karali *et al.* this volume.

- 12 Diamant 1974, 352–5.
- 13 Wickens 1986, 101–2.
- 14 Mavridis 2006, 132; Sampson *et al.* 1999.
- 15 See Cherry 1988; Douzougli and Zachos 2002; Greenfield 1988; Greenfield and Fowler 2003; Halstead 1996a; Halstead 1996b; Sampson 1993a, 300–2; Sherratt 1983; Trantalidou *et al.* 2011.
- 16 See for example, Hamilakis 2003; Mavridis 2006; Mavridis 2007 (2009).
- 17 Data from Mavridis 2007 (2009), 283–4.
- 18 See for example, Cherry *et al.* (eds) 1991; Georgiou and Faraklas 1985; Hope-Simpson and Lazenby 1962; Hope-Simpson and Lazenby 1970; Hope-Simpson and Lazenby 1973; Renfrew and Wagstaff (eds) 1982; Koutsoukou 1993; Sampson 1987.
- 19 Data from Mavridis 2007 (2009), 283–4.
- 20 Cherry 1982; Torrence 1986.
- 21 Broodbank 2000, 86.
- 22 Renfrew 1972, tab. 14.III.
- 23 Wagstaff and Cherry 1982, 136.
- 24 Cherry 1982; Torrence 1986.
- 25 K. Nowicki, pers. com. 4.2.2014.
- 26 Broodbank 2000, 146.
- 27 Sampson (ed.) 2002; Televantou 2006a; Televantou 2006b; Televantou 2008.
- 28 See for review of the evidence, Sotirakopoulou 2000, 84, 90 with further references.
- 29 Broodbank 2000, 123–4; Cherry 1979, 33; Cherry and Torrence 1982, 27.
- 30 Papadopoulos *et al.* 2003, 56; Papadopoulos *et al.* this volume.
- 31 Merousis 2003, 48, 55, 72, 74.
- 32 Malamidou and Papadopoulos 1999, 586.
- 33 Erdoğan 2013; Erdoğan this volume; Harmankaya and Erdoğan 2003; Matsas 2005a, 100–1.
- 34 Erdoğan pers. com. 12/1/2013; see also Erdoğan 2013; Erdoğan this volume.
- 35 Matsas 1984; Matsas 2005b.
- 36 Kotsakis 1999, 71.
- 37 Pappa and Besios 1999b, 118.
- 38 Pantelidou-Gofa 1997, 120.

- 39 Kotsakis 1999, 67.
- 40 See no. 25.
- 41 Sampson (ed.) 2002, 17–38, Sampson 2008c.
- 42 See for this phase Sampson *et al.* 1999; Mavridis 2006; Mavridis 2010.
- 43 Sampson 1993a, 191.
- 44 Mavridis 2006, 119.
- 45 Criado 1995, 201.
- 46 Andreou and Kotsakis 1994; Bailey 1997; Bailey 1999; Bailey 2001; Chapman 1997b; Chapman 1997c; Chapman 2000a; Chapman 2000b; Kotsakis 1999; Nanoglou 2001.
- 47 For the differences between extended and tell sites, see Kotsakis 1999, 74.
- 48 Knossos in Crete represents a different and very interesting case. It was first inhabited during the Aceramic Neolithic and it continued in use throughout the Neolithic period. For this site see Eustratiou *et al.* 2013; also Kotsakis 2008c.
- 49 Bailey 1999; Kotsakis 1999; Tringham 2003a.
- 50 Halstead 1999, 9–11.
- 51 Kotsakis and Halstead 2004, 411.
- 52 See note 45 for references concerning tell and extended type sites.
- 53 For mobility patterns in the Neolithic, see Gosden 1994, 81. See also Bailey 1997, 41; Bailey 1999, 101–2; van Andel *et al.* 1995 for views concerning the character of tell settlements.
- 54 See also Tringham 2003a, 90 for the Balkan sites.
- 55 See review of the evidence in Aslanis 1998, 107–15; also Televantou 2008, 45.
- 56 See the example of Ftelia (Sampson (ed.) 2002; Sampson 2008c).
- 57 See the example of Saliagos (Evans and Renfrew 1968, 25).
- 58 See the examples of Saliagos and Myrina on Lemnos (Evans and Renfrew 1968, 18; Dova 1997, 291).
- 59 See for example, Sampson (ed.) 2002; Sampson 2008c.
- 60 Sampson 2008c, 35.
- 61 Televantou 2006b, 187; Televantou 2008 46; Televantou this volume.
- 62 Televantou 2006b, 187; Televantou 2008 46; Televantou this volume.

- 63 Televantou 2001, 22; see Karali *et al.* this volume. The publication of the stratigraphy of Strofilas will further clarify issues related to the use of space during the Late Neolithic II.
- 64 Karali *et al.* this volume; Sampson 2008c, 35; Televantou 2001, 22.
- 65 Adam-Veleni *et al.* 2004, 176, also Pappa this volume.
- 66 Chrysostomou *et al.* 2003, 518. Based on their content (sherds not joining each other) it has been proposed that the pits were used for rubbish.
- 67 The excavator makes a general reference to the symbolic significance of several pits, some of which were found containing intact pots, see Adam-Veleni *et al.* 2004, 174.
- 68 Adam-Veleni *et al.* 2004, 177, compare with the evidence from Limenaria on Thasos.
- 69 Tsougaris *et al.* 2004, 626. Compare with the evidence from Strofilas.
- 70 Pappa *et al.* 2003, 272; Pappa this volume.
- 71 Collins and Halstead 1999, 140. This evidence was interpreted as representing large-scale consumption of animals with symbolic connotations, also Pappa this volume. Similar evidence (use of pits, silos etc.) can be found at synchronous West Anatolian sites, which show in several cases close similarities (pottery and other material remains) to sites of the Aegean islands, see contributions in this volume.
- 72 Coleman 1977, 52–3.
- 73 See references in Pantelidou-Gofa 2008, 286–7. For the unique case of Keros with the deposition of a large amount of material, see Renfrew *et al.* 2007; Renfrew *et al.* 2013.
- 74 Pantelidou-Gofa 2008, 282–3.
- 75 Karali *et al.* this volume.
- 76 Katsarou-Tzeveleki and Sampson 2013.
- 77 Katsarou-Tzeveleki and Sampson 2013.
- 78 Katsarou-Tzeveleki 2008; Katsarou-Tzeveleki and Sampson 2013.
- 79 Mavridis and Tankosic 2009; Mavridis and Tankosic 2013.
- 80 Stratouli 2005, 123–32.
- 81 Mavridis *et al.* 2013b; Mavridis 2016.
- 82 Thomas 1991, 56.

- 83 Chapman 2000a, 61.
- 84 Chapman 2000a, 46–7, 53.
- 85 See also Thomas 1991, 59 for interpretative aspects of similar practices; for the Balkans see Tringham 2003a, 94.
- 86 See for example, Chapman 2000a, 184; Whittle 1996, 79; see also Pollard 2001, 323–8; Nelsson 2000, 54.
- 87 See note 45 for tell and extended type sites.
- 88 Halstead 1999, 9–11; Kotsakis and Halstead 2004, 422
- 89 Kotsakis and Halstead 2004, 411.
- 90 See Whittle 1996, 120 for parallels.
- 91 Parker-Pearson and Richards 1994, 64.
- 92 Bardanis 1989, 71–3; Doumas 1990, 158–60; Televantou 2006b, 190; Televantou 2008, 47–50. It will be of great interest to see whether rock-carvings are a Neolithic phenomenon or if they continued into the Early Bronze Age and to what extent they were transformed in use and meaning during this phase. In the case that future research manages to identify those belonging to the Neolithic background of the islands, it would be of interest to see whether islanders of the Early Bronze Age buried their dead or established settlements in close proximity to rock-carvings as a means of maintaining continuity with their ancestral past. The close similarities of the Strofilas rock-carvings with those from Korfi T' Aroniou (Doumas 1965) leave any further speculation to future research.
- 93 For the continuity between the Late Neolithic and the Early Bronze Age in the Cyclades, see Mavridis 2007 (2009); Mavridis 2010; Mavridis forthcoming a; Mavridis and Tankosic 2016.
- 94 Televantou 2008, 49.
- 95 Mavridis 2007 (2009).
- 96 Mavridis 2007 (2009).
- 97 Mavridis 2002.
- 98 Mavridis 2007 (2009).
- 99 On the aspect of continuity see Mavridis 2009; Mavridis forthcoming a; Mavridis and Tankosic 2016.
- 100 Mavridis 2007 (2009); Mavridis 2010; Mavridis forthcoming a; Mavridis and Tankosic 2016.
- 101 Differences are present between the sub-phases of the Late Neolithic in relation to settlement patterns, production, circulation

and deposition of material remains, *etc.* Here we examine the general framework and wider context in which changes in the use of space during the Late Neolithic took place.

[102](#) Hamilakis 2003, 243; Mavridis 2006, 135; Mavridis 2016.

Strofilas, Andros: New perspectives on the Neolithic Aegean

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Introduction

Habitation on the Aegean islands is documented by finds dated at least to the Mesolithic period, known from sites such as Maroulas on Kythnos or from sites on the island of Ikaria.² Settlements from the MN period (5000–4500BC), such as Saliagos near Antiparos³ and Ftelia on Mykonos,⁴ from the Late Neolithic period, such as Kephala on Kea,⁵ as well as evidence from a variety of other locations in the Cyclades⁶ suggest that this dense island complex in the Central Aegean played an important role in Neolithic maritime communication. The prevailing picture regarding habitation was that there were small settlements or seasonal installations. The large fortified settlement of the Final Neolithic period at Strofilas on Andros (Fig. 40.1)⁷ radically changes this perception. On the one hand, it expands the horizons of Cycladic prehistory, and on the other, it creates new perspectives on the Neolithic Aegean.

The growth of Strofilas is attributable largely to three factors. Firstly, the proximity of Andros to mainland Greece and especially Attica, which made it a natural bridge, one of man's first "steps" into the Aegean. Secondly, it was an important hub and port of

call on the Neolithic sea routes for the transport of goods.⁸ Thirdly, the beginning of mining in the Lavreotiki (Merenda)⁹ during the Late Neolithic period offered the opportunity for decisive participation in the transport of ore.

Cape Strofilas is a naturally fortified location with a safe harbour; to the south, a gully with a stream ensured drinking water. The cape surveys the area from Attica and Euboea to Syros, Paros and Naxos and controls the sea route.

The site

The vulnerable inland side of the settlement is protected by an impressive strong defensive wall – approximately 100 m long - with three rudimentary curved bastions, one of which protects the gate (1.50 sq m). The wall is preserved to a height of approximately 2 m and is estimated to have been at least 4 m high.¹⁰

Parallel to the wall and approximately 15 m to the north runs a second wall, 0.80 m thick, perhaps part of a complex defence system comprising an outwork and a fortification wall. Most probably it protected the area up to the wall where there are many rock-art representations.

The wall protects the entire promontory and provided safety for flocks and herds for a long period of time. It also gives an overall picture of the serious threat of attack during this period in the Aegean.

So far, it is the oldest fortification on the Aegean islands and the only dating to the Final Neolithic period,¹¹ which suggests that the known Early Cycladic fortifications (Markiani on Amorgos, Kastri on Syros and Panormos on Naxos)¹² have precursors in the Neolithic period.

The settlement fabric is extremely dense and at least some of the buildings, possibly designed for public use, were constructed according to a preconceived plan, for example the large Complex Z (200 sq m in area), which abuts the wall.¹³

The buildings, apsidal and rectangular in plan, are impressive for their large size (Apsidal 1, 1.10×6 m, Complex Z, built at the same time as the wall, approximately 200 sq m).

There are more than one building phases. For example, part of the large Building B was built on top of the south arm of Apsidal 1, while the doorways of the two smaller rooms to the outside were blocked.¹⁴

The walls are constructed of flat fieldstones and clay, while the thickness of the external walls, 0.60–80 m, hints at the existence of an upper storey. The floors are of clay and it seems that the roofs were flat and covered by stone slabs, as in recent traditional architecture. In Building B (Fig. 40.2),¹⁵ the large Room 3 (8.95×10.10 m) had a floor of excellent quality, made of pure red clay with a smoothed surface, well compacted and polished with a cylindrical stone tool or large pebbles. On the floor were five constructions (bases) on which wooden posts would have been placed to support the roof (Fig. 40.2). The lower part of a built pillar (0.70×0.50 m) in the centre of the room would also have helped support the roof, as still occurs in traditional architecture. Given the size (13.45×12.50 m), its internal arrangement, its vicinity to the sanctuary and the possibility of accommodating a large assembly of people, Building B appears to have played a special role in the settlement.



Figure 40.1. Strofilas, aerial view (photo by N. Xenikakis, 2008).

The apsidal buildings at Strofilas¹⁶ are among the earliest on the Aegean islands and the Greek mainland, apparently contemporary to Neolithic House Q at Rachmani in Thessaly.¹⁷ The early presence of the apsidal building type in coexistence with rectangular examples at Strofilas indicates the role played by Andros in bridging the Aegean islands and mainland Greece. Parts of buildings with curved plan have been recovered at Ftelia.¹⁸ Neolithic buildings with curved or D-shaped walls have been discovered at Emporio on Chios¹⁹ and on Rhodes.²⁰

Finds

Pottery (Figs 40.3a–b, 40.4) is abundant, with parallels in other areas such as Kephala on Kea, several sites in Attica, Alepotrypa in Mani, Aria in Argolis, Emporio on Chios and the Zas Cave on Naxos.²¹

There are numerous stone tools, such as mortars and grinders, stone axes, chipped-stone artefacts – mainly of obsidian but also of flint – such as large foliate points with bifacial flaking (Fig. 40.5) and ballistic tailed points.²²

So far there are 34 bronze objects: pins, awls, needles, tweezers, a spearhead, a hammered dagger with rib (Fig. 40.6), as well as by-products of metal-working. A gold bead, a rare find in the Cyclades (see also finds from Zas Cave and Ftelia) may indicate contact with regions such as the Black Sea.²³

Fragments of stone vases and other artefacts indicate the high level of stone carving. The minor objects are varied: bone tools, shell ladles, jewellery made of various materials (shells, clay, stone, fossilised sea-shell), seals. Spindle whorls document the practice of spinning and cloth-making, while imprints on the bases of vases provide evidence of basketry.²⁴

Important are the figurines made of stone (Figs 40.7, 40.8) and clay, some of which indicate that the Cycladic cultural development had already been initiated.²⁵

Rock art

The extensive rock-art representations at Strofilas are unique composite examples dating to the Final Neolithic period and in direct relation to a settlement. From their extent, density and subjects, as well as the areas they decorated -indoors and outdoors- they appear to have been a dominant feature of the settlement. They are mainly located in public places, such as the façade of the fortification wall, the area outside that wall and the floor of the sanctuary.²⁶

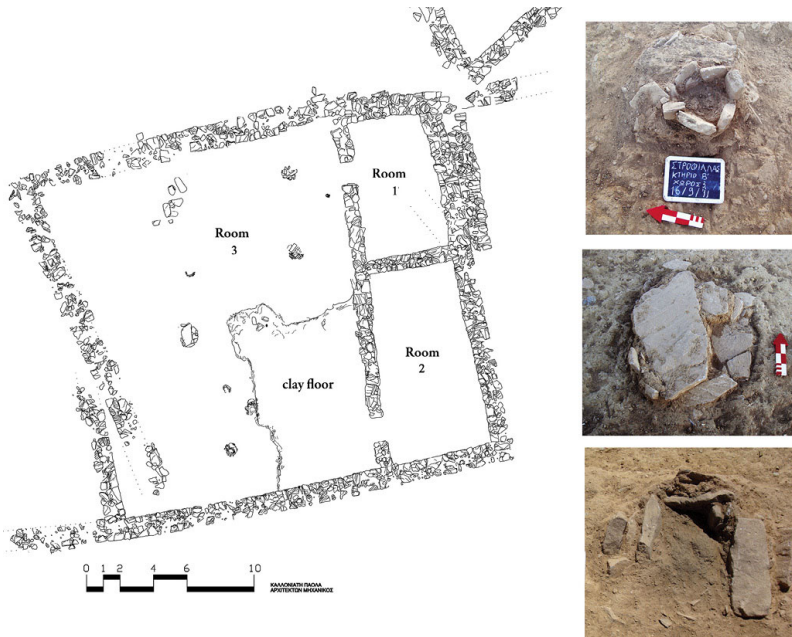


Figure 40.2. Strofilas, Building B: ground plan (P. Kalloniati). Also constructions (bases) in which wooden posts would have been placed to support the roof.

On the façade of the fortification wall, in what appears to be a very early form of frieze, are the oldest representations of ships in the Cyclades. Twenty ships in total face the gate, either alone, in procession as on the main bastion, or in successive rows, marking the gate. As most face the gate, they may have been “sign posts” signalling the entrance to the settlement.²⁷

The ship theme also dominates the area outside the fortification wall (Fig. 40.9a–b), where ships are depicted dozens of times. Some ships bear a flag indicating an organization in their operations, while one is laden with two goats, suggesting the transport or trade of animals.

The more than 100 ships depicted give important new information for the high level of shipbuilding in the Aegean during the Neolithic period, changing the previously-held perception of small and very simple ships. Islands with abundant timber, such as

Andros, must have contributed significantly to the development of shipbuilding. Furthermore, the large number of ship representations indicates that it was Strofilas' special symbol, emphasising the settlement's maritime character.

Between the ships there are numerous symbolic linear and pictorial motifs, as well as individual pictorial representations. Ring-idols, a well-known type of Neolithic figurine considered to be a schematic representation of a female deity, are common. The phallus occurs five times, while footprints, indicating human presence, are also common. Other motifs include:



Figure 40.3. Strofilas: a. Jug; b. bowl with pattern-burnished decoration.



Figure 40.4. Strophilas, large pithos.



Figure 40.5. Strophilas, large foliate points with bifacial flaking.

ΣΤΡΟΦΙΛΑΣ



Figure 40.6. Strophilas, dagger.



Figure 40.7. Strofilas, figurines of the ring-idol type.



Figure 40.8. Strofilas, marble schematic figurines.



Figure 40.10. Strofilas, area outside the fortification wall (to the north) a. rock-art representation of human figure or an anthropomorphic “effigy” (deity?); b. rock-art representation of dolphins in a mother–calf scene (?).

- Small cavities arranged in a spiral, possibly symbolising the sea, are a connecting element in the representations and are a common theme in Early Cycladic rock-art;
- Linear motifs include the open running spiral, the spiral and the meander.

Also represented are deer, felines, probably jackals,²⁸ and fish. One depiction shows a herd of carnivores, probably wolves or jackals, hunting deer. Another depicts a large ship accompanied by smaller ones, some in a bay.

Near the gate is a representation of a human figure or an anthropomorphic “effigy” (0.45 m high), possibly representing a deity in an early form of the Mistress of Animals (Fig. 40.10a). Also, there is a depiction of dolphins in a mother–calf scene (?) (Fig. 40.10b).

The area outside the fortification wall was important for the settlement. It appears that it is here, and especially near the gate, where the epitome of the residents’ worldview on important aspects of life, such as religion and fertility, as well as the maritime character of the settlement, was depicted with symbolic and naturalistic elements. The images may also have had an apotropaic function, for the protection of the settlement.

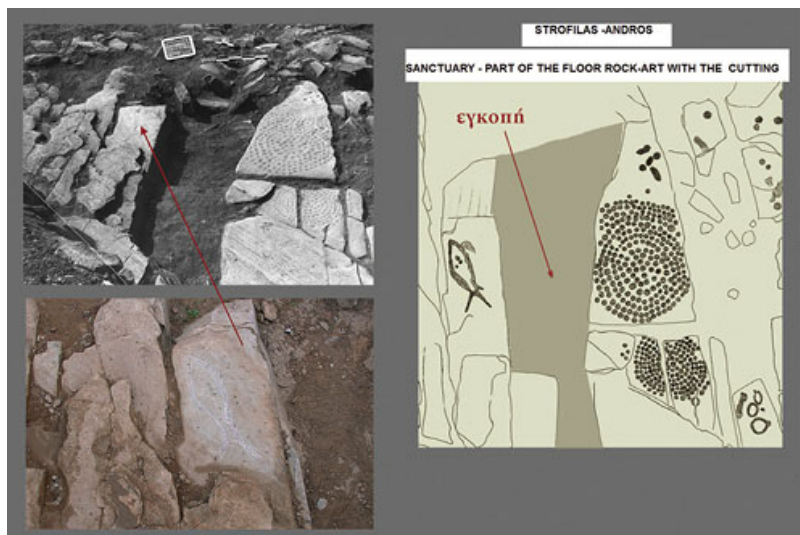


Figure 40.11. Strofilas, sanctuary. Part of the rock-art representation and the cutting on the floor.

In the centre of the north-east part of the settlement, which appears to have been an organised, possibly protected area with public buildings, there is a large hall, probably the sanctuary, measuring over 100 sq m in area.²⁹ Its interior is divided into two parts and levels. In the south part, there is an elevated terraced earthen floor with a large circular stone construction, 2 m in diameter, at the centre and a stone bench along the south side. The two lower steps are of red clay, while the upper step, with the circular construction, is of white clay. In the remaining space, 70 sq m in area, around a large cutting (Fig. 40.11), lies a monumental rock-art representation.

The image includes subjects that are also found in other rock-art representations at Strofilas. On one side of the cutting there is a fish and on the other are small cavities in a dense spiral arrangement, a subject used repeatedly as a connecting element. To the right is a group of four ships, one loaded with an animal, and in the centre is a duck.

Also repeated individually or in groups are the footprint and

ring-idol motifs. The latter is a symbol in the international communication code of the time and is found in the Peloponnese (Dyros), the Balkans and at Varna on the Black Sea. At Strofilas a few stone ring-idol figurines were found (Fig. 40.7), which, along with the large number in rock-art representations, show the established relationship of the inhabitants with this symbol. Its shape is similar to the enigmatic Early Cycladic frying pans, which may represent the Neolithic symbol carried over into the Early Bronze Age as a portable object.

Worship and events at the sanctuary at Strofilas, *inter alia*, would have been related to the supreme power, expressed mainly by the watery element and, of course, the sea, which played an important role in the lives of the residents.

The rock-art representations at Strofilas are the oldest monumental works of art in the Aegean. Strong correlations with rock-art representations at Korfi t' Aroniou on Naxos³⁰ and other Early Cycladic rock art³¹ document the continuation of this art-form up until at least the Early Bronze Age (pecking technique, range of styles and general aesthetics, individual themes – ships with animals).

On present evidence, a number of factors make Strofilas unique in the Cyclades and the surrounding geographical region (Euboea, Attica).

- The large area of the settlement, along with its dense layout and large buildings.
- The communal projects, such as the fortification, the sanctuary and the extensive rock-art representations.
- The abundance of high-quality finds.
- The advanced technology (*e.g.* metalwork, stonework).
- The extensive rock art representations in an excavated context, with symbolic motifs (ring-idols, footprints, cavities in spiral arrangement), linear motifs (spiral, meander), pictorial motifs (ships, animals – goats, deer, jackals, fish, dolphins, *etc.*), narrative scenes (flotilla of ships, jackals hunting deer,

seabed with dolphin and its calf, probably a human figure or an anthropomorphic “effigy”, 0.45 m high, possibly representing a deity). It seems that long before the development of pictorial art on pottery and plastered walls in the Middle and Late Bronze Age Cyclades, Neolithic artists laid the foundations of the iconographic vocabulary and spatial management in composite scenes.³²

- The intense maritime character of the settlement (shipbuilding, seafaring, trade), which is documented by more than 100 depictions of ships in the rock art in public places (sanctuary, wall, area north of the wall), forming the community’s prevailing symbol.
- The use of a sophisticated and widespread communication code using a system of symbols (ring-idol motif, human soles, cavities in spiral arrangement).

Conclusion

The evidence indicates that Strofilas was a thriving proto-urban settlement of maritime character, which undoubtedly played an important role in a wider network of smaller and/or similar-sized settlements during the Final Neolithic period. Strofilas reveals new information on the culture of the Aegean during the Final Neolithic period, expanding the horizons of Cycladic prehistory and iconography and creating new perspectives on the Neolithic Aegean in general. It demonstrates that during this period an advanced culture took shape in the Cyclades, with large organised maritime societies and similar settlements with early urban structures, which were the basis for the subsequent cultural developments of the Middle and Late Bronze Age.

Notes

- ¹ The figures were processed by my colleague, archaeologist K. Birtacha. The text was kindly translated by Mrs E. Doumas.
- ² Sampson 2006, 27–43.

- 3 Evans and Renfrew 1968.
- 4 Sampson (ed.) 2002; Sampson (ed.) 2006, 173–84.
- 5 Coleman 1977.
- 6 For Andros see Televantou 2006a, 2–3; Televantou 2006b; Televantou 2008, 43, fig. 61. For the Cyclades in general see Papathanassopoulos 1981. Also, Zachos 1987b; Zachos 1990; Zachos 1996; Sampson (ed.) 2006, 172–201; Sotirakopoulou 1999; Sotirakopoulou 2008b.
- 7 On Strofilas see Televantou 2006a; Televantou 2006b; Televantou 2008.
- 8 Papageorgiou 2008a.
- 9 Kakavoyanni 2003.
- 10 Televantou 2006a, 4–5, figs 3–4; Televantou 2008, 44–5, fig. 6.2–3.
- 11 Stone wall protected the small settlement on Saliagos (Evans and Renfrew 1968, 23, fig. 11, tab.0 X). For Emporio (Chios), see Hood 1981, 93, figs 51–2; also Aslanis 1998, 111–12.
- 12 For bibliography see Televantou 2006a, 5.
- 13 Televantou 2006a, 5; Televantou 2008, 45.
- 14 Televantou 2008, 46, fig. 6.7.
- 15 Televantou 2008, fig. 6.4.
- 16 Televantou 2006a, 5–6; Televantou 2006b, fig. 176; Televantou 2008, 45–6, fig. 6.5.
- 17 Wace and Thompson 1912, 37–40, fig. 17.
- 18 Sampson (ed.) 2002, 30–1, fig. 12, 14; Sampson 2008c, 31, fig. 4.5–6.
- 19 Hood 1981, 101–2, pl. 18d.
- 20 Sampson 1987, 79–80, 125, pl. 39a.
- 21 See Televantou 2008, 50–1, fig. 6.11–15; Televantou 2006a, 9–10, fig. 7α–β.
- 22 See Televantou 2006a, 10; Televantou 2008, 51, fig. 6.17–19.
- 23 Televantou 2006a, 10–11, fig. 8a; Televantou 2008, 51; Zachos 1996, 167, 340, cat. no 304; Sampson 2006, 176, 208, fig. 157, 197.
- 24 Televantou 2006a, 11, fig. 8 β–γ; Televantou 2006b, fig. 182; Televantou 2008, 51, fig. 6.20–1.
- 25 Televantou 2006a, 11, fig. 8β–γ; Televantou 2006b, fig. 183; Televantou 2008, 53, fig. 6.20, 6.22.

- 26 Televantou 2006a, 6; Televantou 2008, 46.
- 27 Televantou 2006a, 7; Televantou 2008, 47–8.
- 28 Televantou 2006a, fig. 6a; Televantou 2006b, fig. 177.
- 29 Televantou 2006a, 7–9, fig. 6β; Televantou 2006 b, fig. 179; Televantou 2008, 48–50, fig. 6.9–10.
- 30 Dumas 1965.
- 31 Bardanis 1988/89.
- 32 Televantou 2013.

The Late Neolithic and Final Neolithic phases on Kos and the Alasarna settlement pattern

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Introduction

Historically, the Neolithic period in the Aegean islands has been less fully investigated than in mainland Greece. However, in recent decades, full excavation reports from a number of sites have provided a better image of this period in the islands. Furthermore, the research conducted in several Western Anatolian sites has allowed a broader outlook on the Aegean during the Neolithic period. These new data have significantly altered the discourse concerning dating and occupation of the islands. The dominant hypothesis of a Late Neolithic (hereafter LN) colonisation of the Aegean islands² has been substantially reconsidered after the discovery of Palaeolithic, Mesolithic and earlier Neolithic sites.³ Additionally, a more in-depth study of the later Neolithic periods needs to be undertaken, emphasising the changing social and economic dynamics. In this framework, new analyses are needed in order to understand the similarities, differences and variations between the various parts of the Aegean and the development of the different Neolithic subphases in the wider region. The geographical position and the research conducted on Kos provide

both a good example of the later Neolithic phases and a diachronic assessment. The use of the finds from the systematic survey at Alasarna also clarifies issues of pottery and stone tool production and consumption as well as the development of a regional settlement pattern. It also allows an assessment of new social and economic elements during these phases, as well as providing a regional outlook on broader contemporary processes. Additionally, it will be demonstrated that the island of Kos was part of a larger Aegean network, with close interaction with many neighbouring areas, but at the same time it developed a particular character of its own.

Neolithic Kos

The study of the Neolithic period on Kos, and in fact in the whole Dodecanese, was initiated by the excavation of the Aspri Petra Cave in the Kephalos area at the western part of the island.⁴ It may have been used already from the Middle Neolithic (MN) phase, and there are many finds to suggest that it was occupied during the Final Neolithic (FN) period and later in the Early Bronze Age (EBA). Nevertheless, until 1970 the research focus on the island, and in fact in the whole of the Dodecanese, with a few exceptions,⁵ was the Bronze Age and the Mycenaean phase in particular.

Hope Simpson and Lazenby became more interested in the earlier periods of the Dodecanese and located a number of Neolithic and EBA sites across the island.⁶ The surface collection of a few diagnostic sherds from these sites provided a clear image for the Neolithic occupation on the island. There are important conclusions from their report that can be drawn in regards to the date and spatial characteristics of these sherds. They identified Neolithic sherds at five sites across the island, which, along with the Aspri Petra Cave, seem to belong to the latest subphase. Interestingly enough, in all cases the sites appear to have a continuity of occupation into the EBA, a phenomenon that seems

to be rare in the Aegean islands.⁷ The position of the recovered sites shares a few basic landscape elements, such as the preference for inland locations, on summits or slopes of low hills, and with immediate access to food, arable and pastoral land. All Neolithic sites share these characteristics, which are also found during the EBA both in settlements which continued from the previous period and those which were new.⁸

The excavations and surveys conducted by A. Sampson in the 1980s in the Dodecanese brought the Neolithic period in this part of the Aegean to the fore.⁹ Although he did not do much work on Kos, the finds from the other islands, especially the neighbouring islet of Yali, were very important for the broader understanding of this phase. He provided a sequence of sites and finds from the MN until the end of the Neolithic period. At the same time, he proposed a different use of terminology for the later part of the Neolithic periods based on the subdivision of the Anatolian Chalcolithic into four phases, *i.e.* the Late Aegean Neolithic period 1–4 or LAN 1–4. The problem of terminology became more complicated when Melas, in his 1988 article, used the Late Chalcolithic dating of Anatolia in his survey of prehistoric sites in the Dodecanese, unlike his earlier work.¹⁰ The re-dating of the sites in the Dodecanese within the later Neolithic phases by Sampson has rather confused the chronology of this region.¹¹

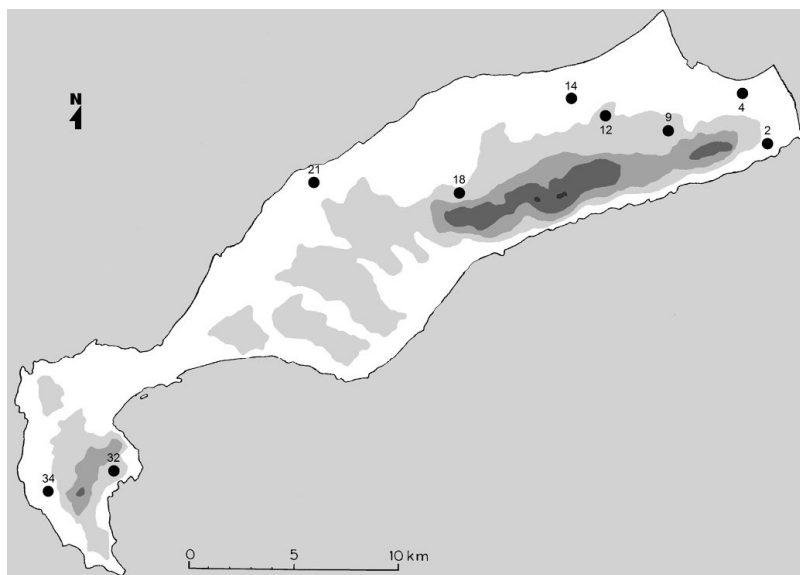


Figure 41.1. Neolithic sites on Kos.

I have expressed my reservations regarding the use of these chronological schemes more explicitly elsewhere.¹² In short, the dating used should be consistent and relevant to the area under analysis, whilst its socio-cultural context should be taken under serious consideration. The Anatolian chronology is based on the sequence of the south-eastern part of this region, which is far from the coastal western region. Even Beycesultan, on which the four subphase system of the Late Chalcolithic is based,¹³ is located too far from the Aegean. The close ties with Western Anatolia should not be underestimated, but the same applies for the neighbouring Cyclades, the North-East Aegean islands, Crete and even mainland Greece. The more recent chronological scheme proposed for Crete¹⁴ provides a closer parallel for the Dodecanese and synchronisations may be more relevant between these two areas. It is also impractical to discuss and compare neighbouring areas with different terminology such as Late Chalcolithic or LAN 4 Astypalea or Kos with FN Amorgos, especially as these terms as not clearly defined and are no different in terms of their cultural,

social or economic matrix than those already in use.

In the last few decades, only a limited number of studies have been concerned with the Neolithic period on Kos. A. Sampson provided a summary of the Neolithic period on Kos along with Yali,¹⁵ and Benzi re-published fully the finds from the Daskalio Cave¹⁶ from Kalymnos that Furness had studied.¹⁷ A few more Neolithic sites have been noted in the Kephalos area as well as a new source of a lesser quality obsidian in this region, which may have been locally exploited in this phase (Fig. 41.1).¹⁸

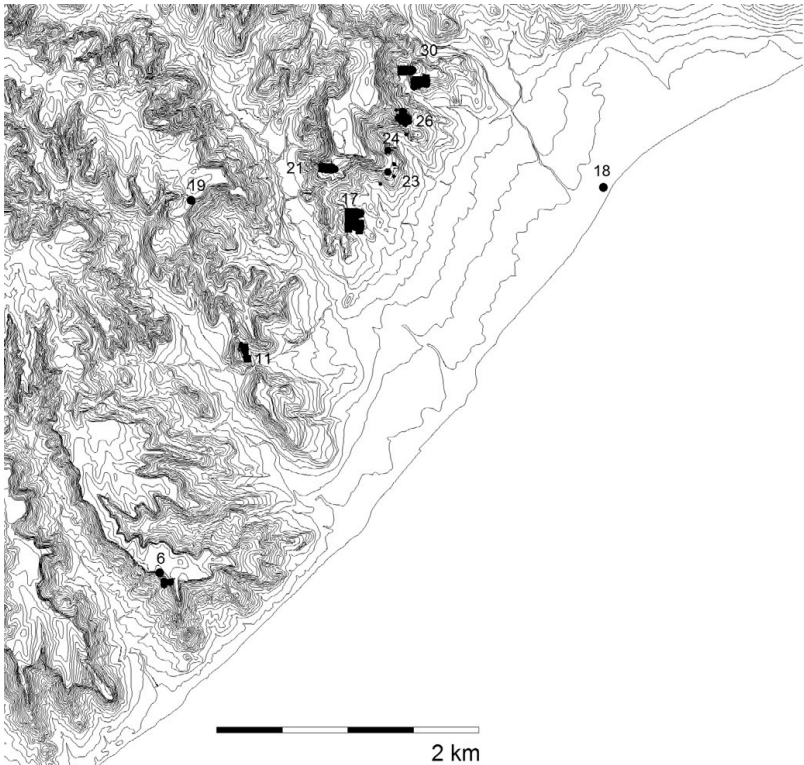


Figure 41.2. Neolithic sites in the Alasarna region: 30. Nerantzia, 26. Koutlousi, 21: Koutounis Hill, 18. K17.15, 17. Koutounis, 11. Tsangaris. 6. Koukos.

Neolithic Alasarna

A systematic surface survey was conducted by the University of Athens under the direction of Professor G. Kokkorou-Alevras and Dr K. Kopanias in the area of Alasarna, situated at the central-southern coastal part of Kos. This strip of land has a large coastal plain surrounded to the north and west by the low flat hills of the Antimachia plateau and to the east by the mountainous mass of Dikaïos (Fig. 41.2). Alasarna, as well as the central part of the island, consists mainly of volcanic tuff, making the plain very fertile. The area also possessed a fair number of streams.

The settlement pattern

A small number of diagnostic sherds from the inland site of Koutlousi (Fig. 41.2.26) suggest that it was occupied from the later MN period until the later EBA.¹⁹ It is located on a low hill at a southern extension of the Antimachia Plateau just above the northern end of the Alasarna Plain (Fig. 41.2). It has great visibility over the plain, parts of the hills and Mount Dikaïos and out to sea, including Yali and Nisyros. Koutlousi is the earliest open air site on the island so far and possibly contemporary with the Aspri Petra Cave. This site is not only important for its early date, but also for demonstrating that the landscape characteristics identified in FN and EBA sites across the rest of the island were the result of continuity over a long period of time.

This is better understood during the LN period when more sites appeared and a settlement pattern becomes visible in the Alasarna area. Apart from Koutlousi (Fig. 41.2.26), there were four more sites, including Tsangaris (Fig. 41.2.11), Koutounis Hill (Fig. 41.2.21) and possibly Nerantzia (Fig. 41.2.30) and Koukos (Fig. 41.2.6), which produced diagnostic finds from this phase. All of them are located on the summits or slopes of low hills overlooking the Alasarna plain, and share the same characteristics as Koutlousi. It seems that the latter site provided a good prototype for its position within the local landscape context and fulfilled the social, political and economic needs of the population during this

phase. Among these sites, the proximity between Nerantzia (Fig. 41.2.30) and Koutlousi (Fig. 41.2.26) is of particular interest, since they are placed on two opposing hills ca. 300 m apart. The co-existence of these two sites from this period until the later EBA strongly suggests good relations and cooperation between the two settlements rather than conflict. Their proximity could be seen as different clusters of the same site, but their spatial development in the EBA argues otherwise for that period. Perhaps during the LN and FN period they represented different kin groups with close ties and relationships.

During the FN phase all the aforementioned sites yielded more diagnostic finds of occupation (Fig. 41.2). Furthermore, another site with the same characteristics can be added at Koutounis (Fig. 41.2.17), located on the slopes of a low hill and in close proximity to the Koutounis Hill (ca. 300 m) (Fig. 41.2.21). The relationship and distance between these two sites is very similar in character to that seen earlier between Koutlousi and Nerantzia. Perhaps this was a local response, ensuring social and economic sustainability, which would lead to survival and continuity for the settlements. Another site that belongs to this phase has been found in the south-eastern part of this region, close to the current coastline.²⁰ This site may have been the earliest coastal site in this region, and the island as a whole, but it seems to have been rather small in size and short-lived, being the only FN site that did not continue in use in the following period. Perhaps it was a predecessor of the small short-lived sites that were especially common during the EBA in the Aegean islands. The size of the rest of the Neolithic sites appears to have been between 0.1 and 0.25 ha, which appears to be average in comparison to other contemporary insular settlements. In this framework, it could be proposed that these sites represented kin-group habitation areas. Nonetheless, Koutlousi appears to have been the largest site during this period, reaching 0.4 ha in size. It seems already that in the region from the FN phase, a settlement differentiation can be observed, if not a

certain degree of hierarchy. The size of Koutlousi and its proximity to Nerantzia could suggest that it acted as a local centre for this area.

The pottery tradition

The MN pottery remains are limited in number, but there is a clear relationship with neighbouring Rhodes and the MN Kalythies Cave finds in particular.²¹ From the LN period there are more diagnostic sherds, suggesting the development of a local pottery tradition that would last until the later part of the EBA. This can be more clearly seen in the fabric of the pottery, and especially in the treatment of the clay. The area of Alasarna possessed a number of clay beds, which could have been used. In general, the local pottery is robust and thick-walled, and includes both open and closed vessels. The local clay has numerous inclusions, including mica, which is omnipresent in the sherds. It seems that it was part of the clay, was mainly silver in colour, but a small percentage of larger flakes of golden mica are also present. The majority of the sherds also have angular pieces of transparent quartz inclusions. Apparently, quartz existed in large quantities in the upper layers of the clay beds and either the clay was not well cleaned or the quartz was purposely added in order to manufacture larger and thicker vessels. Another element on the surface of the sherds is chaff/straw marks. The addition of straw helps the clay to dry before firing. The use of this technique is already known from the EN phase at Knossos and elsewhere in the Aegean as well as in Anatolia. On Kos it is clearly attested from the LN, but it may have been employed earlier, and it is more commonly found here than in other contemporary sites. Furthermore, this practice appears to continue well into the EBA, something that is not seen in other areas, strongly suggesting the continuity of the local pottery tradition from the LN to the EBA.

The surface treatment was in most cases a simple smoothing of the vessel walls, and in some cases the surface had striations

which occasionally formed a kind of pattern of several diagonal shallow incisions. However, it is also common to find what Furness had called a “mechanical slip”, which is the burnishing of the surface without a clay slip.²² Slip was applied in some cases only on the walls of the vessels; no painted sherds have been found.

The vessels identified for the LN period represent shapes well known at Kalythies on Rhodes, Ftelia on Mykonos, Saliagos, Tigani on Samos and Emborio on Chios.²³ The affinities appear to be primarily with Cycladic sites and secondarily with the islands of the North-East Aegean. There are different bowl types belonging to this period, such as the pedestal bowl, the dipper, the scoop and a variety of a pedestal bowl.

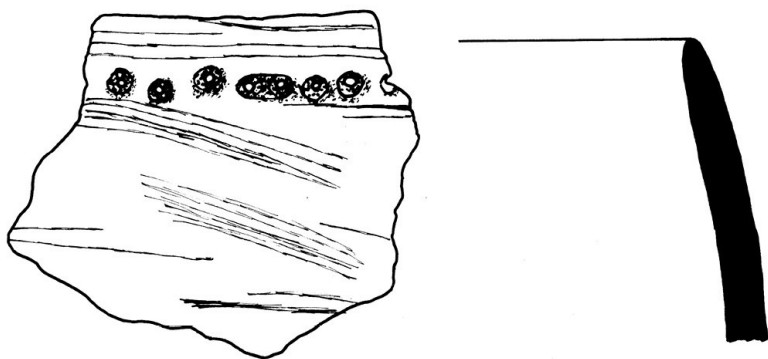


Figure 41.3. Rim from a cheese pot.

The number of finds belonging to the FN period is significantly larger in the Alasarna area. During this phase a number of sites are known across the Dodecanese, *i.e.* on Kasos, Karpathos, Rhodes, Alimnia, Yali and Leros, whose pottery tradition shares many elements with the Alasarna sites.²⁴ Furthermore, links with contemporary Cycladic sites remain equally as significant as before,²⁵ while close comparisons are found in the North-East

Aegean as well as Western Anatolia.²⁶ Some of the mottled ware sherds belong to this phase, as do a variety of bowls, including some with rolled rims. A small category of crusted wares and red slipped and burnished sherds are also part of the local FN tradition. Moreover, a large number of cheese pots from different sites in this area have also been found, a typical shape from sites across the Dodecanese and beyond (Fig. 41.3). Finally, it is important to note the appearance of large pithoi for the first time during the FN in this region.

The appearance of pithoi could be associated with important socio-economic developments already noted at settlements on the contemporary Greek mainland and at well-studied sites in the Cyclades. These are related to the intensification of agricultural exploitation and a larger yield of the land that became available to the FN farmers. Thus, the available surplus needed storage and for that reason the large clay containers were manufactured and employed. This explanation can be locally supported by the appearance of more sites across this fertile area, suggesting a wider exploitation of arable land. Moreover, it also partly explains the settlement hierarchy in this area, discussed above.

The stone tools

In this section I will present the flaked stone tools, the coarse stone tools and the available evidence on metalworking. All these categories of artefacts are not well dated and without a clear stratigraphy no clear distinction can be made between the Neolithic and EBA periods. The fact that all the sites that produced these objects were in use both during the Neolithic and EBA makes clear dating difficult.

In all sites in this area the obsidian from Yali (Fig. 41.4) dominates over the few examples of the Melian variety.²⁷ The working of chert and quartz has also been noted, but they are also limited in numbers. A special mention should be made of a few obsidian examples that macroscopically seem to come from the

Kephalos area. The irregular shapes of most Yali obsidian tools do not allow a better chronological understanding of their technological development. However, some of the blades made of Melian obsidian could be attributed by their manufacturing techniques to the Neolithic period. Thus, it seems that this material was already available in this part of Kos, in modest quantities, from this phase. Moreover, none of the Melian flakes bear any part of their cortex, suggesting that they came to this area as prepared cores or ready-made implements. The amount of Melian obsidian and its character argues against direct access to the material from Melos and strongly suggests it came through the wide Aegean exchange network.

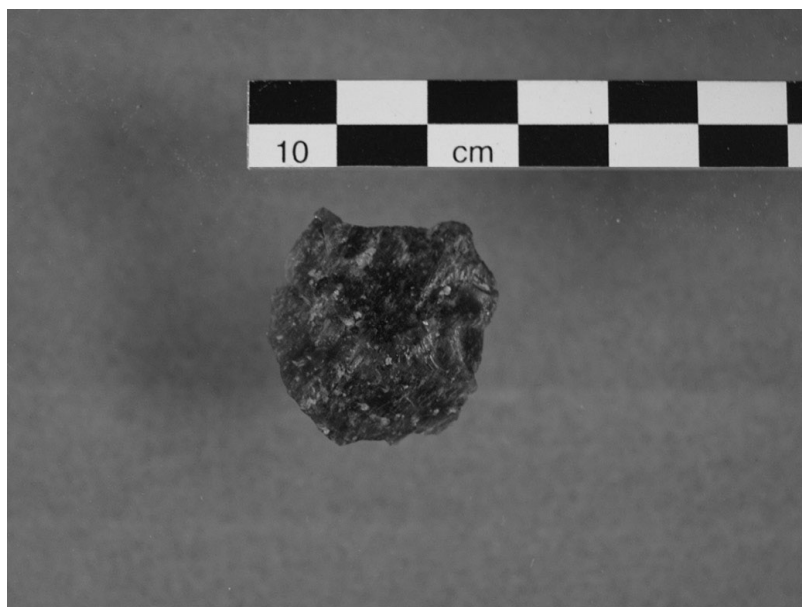


Figure 41.4. Yali obsidian scraper.

Stone tools have been recovered from fewer sites, but in a variety of materials and shapes.²⁸ The volcanic environment of the island and its surrounding area provided a selection of stone beyond the more common limestone and sandstone. Thus, andesite and monzonite (a form of granite) were used, while marble was

employed in grinders, as seen elsewhere in the Cycladic islands. The different stones suggest that they come from various sources and that multi-directional circulations co-existed both within the island and outside of it. The only chronological distinction that can be made is based on size, with smaller grindstones belonging to the Neolithic period and larger to the EBA.²⁹ The clearest EBA example is a saddle quern from Nerantzia made of granite, originating from inland central Kos.

The metalworking evidence is both direct and indirect in this area. The only definite finds come from Koutlousi where an EB II clay mould for making metal artefacts has been found, as well as remains of clay furnaces.³⁰ The latter could equally belong to the FN or EBA, as suggested by parallels from Kephala on Keos and from sites on Siphnos.³¹ The indirect evidence is the presence of a copper source in the mountainous area of Dikaïos and the recovery of a FN bronze object on the neighbouring islet of Yali. The latter item could have been of Koan provenance and may have been manufactured at a site within the area.

Conclusions

The fact that Kos is a medium-sized, fertile and well-watered island within the wider Aegean context was an important factor in both its early occupation and the development of extensive settlement over the Neolithic period. There was a clear preference for topographic location of settlements on inland low hills close to good arable land with visibility over the lowlands. The Alasarna survey has allowed us to trace this type at least as early as the MN phase and has shown that there was continuity until the end of the Neolithic period. As noted earlier, the success of this model ensured its continuity into the EBA, despite the social, political and economic changes that took place during this phase. This realisation argues for a good adaptation of the local population to the landscape of the island and an efficient exploitation of its available resources.

The Alasarna survey has also added another variable to the understanding of the island, namely the gradual development of the settlement pattern in this region from the MN to the FN phase. It shows a slow process of “colonisation” of the landscape by Neolithic people that reached its peak on Kos during the EBA.

One more important element is the defensive aspect of these settlement locations. The vast majority of the Neolithic sites are inland and located on hills with a view over the landscape and often the sea. No fortification has been identified so far, but there seems to be a clear concern for security. In this context, intra-island tensions and settlement competition over local resources could have been expected. However, the evidence from Alasarna appears to suggest that this hypothesis had a limited role in security concerns. The presence of settlements in close proximity to each other over a long period of time strongly suggests cooperation rather than conflict. Therefore, the inland character of these sites suggests that the danger was considered to come from the sea. The images of longboats from FN Strofilas on Andros graphically depict the form of threat that already existed in this phase.³² The danger on Kos appears to have been from inter-island piratic activities

The material culture suggests contact and interaction with the rest of the Aegean as well as the development of a local tradition. This is best demonstrated through the pottery, which follows some Aegean trends, reaching as far as mainland Greece and Anatolia. The local potters follow some of the new types of vessel forms and decoration, but at the same time employed their own techniques of production over a long period of time. The pottery tradition at Alasarna seems to be continuous from the MN until the EBA, but it could have been a part of more regional pottery centres across the island of Kos at the same time.

The stone and potentially the metal finds from Alasarna provide a similar picture to that seen from the pottery. Some of the flaked tools come from the island itself, such as the chert,

quartz and the Kephalos obsidian, while others were brought from neighbouring areas such as Yali. The Melian obsidian emphasises the broader Aegean exchange network in which Kos was actively participating. The provenance of the coarse stone tools is probably also Kos and Yali, but they could have come from as far as Nisyros. The exploitation of copper seems to include both Kos, at least as a source, but most probably also as a production and consumption area, and Yali in the FN phase. All these data suggest close interaction and exchange taking place on a regional scale that encompassed Kos, Yali and Nisyros, and, to a lesser extent, the broader Aegean. In that respect, it seems that the evidence from both the pottery and stone finds suggest the same degree of interaction in the surrounding area of Kos and beyond.

Another issue that has not been discussed thoroughly is the important socio-cultural changes that occurred between the LN and FN phases in the Dodecanese, alongside stylistic developments in pottery. The Alasarna finds have allowed a fuller assessment of the new elements of the FN period, including a better understanding of the characteristic pottery from this late Neolithic phase. The latter can be identified by the presence of more diagnostic types such as the crusted ware, bowls with rolled rims, pithoi and cheese pots.

The sites at Alasarna demonstrate the gradual increase of settlements from the MN to the FN phase. This confirms the picture we have already from both Sampson's research in the area and the archaeological visibility of the latter phase from surface scatters.³³ Nonetheless, the available data substantiate and provide the socio-economic basis for this observation.

The presence of pithoi in the pottery repertoire has been related to an intensification of agriculture and the collection of greater surplus by the local communities, whilst at the same time more sites appeared in the Alasarna region. The "colonisation" of the landscape and the exploitation of the rich arable land become more evident, emphasizing a new economic model based on

increased storage. The more successful settlements in this process, such as Koutlousi during the FN phase, grew larger, creating a differentiation in size and an imbalance among the contemporary settlements in the area. Thus, a social hierarchy can already be envisaged, which currently can only be observed in relation to settlement size.

This image from Alasarna reflects the processes that were under way throughout FN Kos and it is proposed that the same should be expected at least in parts of the Dodecanese. This fuller understanding of the Neolithic period on Kos has allowed a more in-depth analysis of an Aegean island during this phase and the opportunity for new research questions to be pursued in future studies.

Notes

- 1 I would like to express my gratitude to Prof. G. Kokkorou-Alevras and Dr K. Kopanias for their help and collaboration in this research programme.
- 2 Cherry 1979; Cherry 1981; Cherry 1990.
- 3 Georgiadis 2012; Sampson (ed.) 2006; Sampson 2008a; Sampson *et al.* 2010; Strasser *et al.* 2010.
- 4 Levi 1925–6.
- 5 Furness 1956.
- 6 Hope Simpson and Lazenby 1970.
- 7 Georgiadis 2012, 198.
- 8 Georgiadis 2008b, 229–30; Georgiadis 2012, 194.
- 9 Sampson 1983; Sampson 1984; Sampson 1987; Sampson 1988a.
- 10 Melas 1985; Melas 1988.
- 11 Sampson (ed.) 2006.
- 12 Georgiadis 2012, 10–12.
- 13 Lloyd and Mellaart 1962.
- 14 Nowicki 2002, 68–9; Papadatos 2008, 262, 267; Tomkins 2007b, tabs 1.1–2.
- 15 Sampson 2001.
- 16 Benzi 2008.
- 17 Furness 1956.

- 18 Georgiadis 2008b, 229–30, fig.1; Georgiadis 2012, 8–9, 100–1.
- 19 Georgiadis 2012, 119.
- 20 Georgiadis 2012, 120.
- 21 Georgiadis 2012, 85; Sampson 1987, 42–3.
- 22 Furness 1956, 184.
- 23 Evans and Renfrew 1968; Felsch 1988; Georgiadis 2012, 86; Hood 1981; Sampson 1987; Sampson (ed.) 2002.
- 24 Georgiadis 2012, 86–7; Melas 1985; Sampson 1987; Sampson 1988a.
- 25 Coleman 1977; Wilson 1999.
- 26 Felsch 1988; Hood 1981; Lloyd and Mellaart 1962.
- 27 Georgiadis 2008a, 106; Georgiadis 2012, 95–6.
- 28 Georgiadis 2012, 103–4; Poupaki 2011.
- 29 Runnels 1981.
- 30 Georgiadis 2012, 115–16.
- 31 Coleman 1977, 3–4; Bassiakos and Philaniotou 2007, 30, fig. 2.4b.
- 32 Televantou 2008.
- 33 Sampson 1987; Sampson 1988a.

Settlement patterns and social organisation in Crete during the Final Neolithic and the beginning of the Bronze Age (*ca.* 3700–3000 BC)

Krzysztof Nowicki

Introduction

In Crete, the second half of the 4th millennium BC shows an unprecedented increase in number and sizes of sites, and the frequency of structural remains on the surface.¹ It is also at this time that the first signs appear of a level of territorial organisation above that of a single settlement, and that a more complex social organisation can be deduced from all these new elements. There is hardly any other period of Aegean prehistory which sees such a “demographic explosion” – if the site number increase can be interpreted as population growth. This period was preceded by less clear changes in settlement location, starting in the later part of the first half of the 4th millennium, and marking the end of the Late Neolithic settlement pattern. The two periods (here labelled the early FN or FN I, and late FN or FN II) covered about 500–600 years (*ca.* 3700/3600–3100/3000 BC).² Unstable settlement conditions, reflecting dramatic events and processes, are apparent during this time in the entire Aegean, not just Crete. In Crete,

however, the character and sequence of settlement changes is better known than elsewhere in the region due to a much larger number of identified archaeological sites and especially thorough studies of them.

In general, the early FN period in Crete is characterised by re-location of habitation sites to defensible hilltops, directly above the previously-exploited arable land. The best examples of such sites are Gortyna “Acropolis” and Psilo Kastelli in the Mesara, Azoria and Pano Chorio in the Ierapetra Isthmos, Anatoli Pandotinou Koryphi, north-west of Ierapetra, and the site on Pyrgia above Chersonisos. The most extreme of this group was Monastiraki Katalimata, in the Cha Gorge (the Ierapetra Isthmos). Its topography is the best proof of the dramatic nature of the processes which forced people to abandon their earlier (LN) settlement organisation. The general location and detailed topography of these sites indicate that the shift to defensible sites in this early phase probably represents the response of the indigenous Neolithic inhabitants to a threat coming from the sea, and not the result of growing competition between the local groups.³ These early FN (FN I) “refugees” seem to have preferred locations away from the coast, whereas the late FN (FN II) settlers occupied coastal areas as well as inland valleys. However, some differences in settlement locations and material culture indicate that the new settlement phase – that of FN II date – started on the coast and, in some areas only, was followed by expansion into the island’s interior.

Most previous studies of the transition between the Neolithic and the Bronze Age focused on particular elements of material culture, especially changes in pottery production and the relatively sudden emergence of metallurgy, and on the development of long-distance trade, but did not take into account the evidence concerning settlement, whether in Crete or in other parts of the South Aegean.⁴ Understanding of this phenomenon has become possible only during the last two decades as a great number of

settlements of the Latest Neolithic was brought to light as a result of archaeological surveys and reconnaissance. Now, a gazetteer of over 170 open-air Final Neolithic settlements in Crete can provide a good starting point for a new and thorough discussion of the settlement changes at the end of the Neolithic (Figs 42.1, 42.2).⁵

Terminology

Apart from poor evidence, the weakest point of most past discussions concerning the Final Neolithic, another disturbing problem is inadequate and often confusing chronology and terminology – especially the term “Final Neolithic” – and lack of reliable absolute dates for most of the 4th millennium BC.⁶ The term Final Neolithic is among the most serious obstacles to understanding the historical sequence of changes in the 4th millennium BC,⁷ not only in Crete, but also on other Aegean islands. The Final Neolithic, in the insular Aegean,⁸ had only very vague chronological frames: its beginning, in particular, is very controversial, being attached to pottery development but not to much more significant changes in settlement patterns and social organisation. It is therefore not surprising that almost all archaeological surveys undertaken in Crete treated the surface material from the last Neolithic period (labelled either “FN” or “LN”) as representing one homogenous group, without any attempt to differentiate it in shorter sub-phases. In contrast, in the terminology used in this paper and in my other publications,⁹ the Final Neolithic describes two phases of substantial, sometimes dramatic, settlement changes, which affected most of the Aegean. In Crete, the greatest changes in material culture and social organisation took place neither at the beginning nor at the end of the Final Neolithic, but “across” it, allowing this period to be divided into two phases: an early one (FN I), and a late one (FN II) in a scheme which follows Vagnetti’s differentiation between FN early and late.¹⁰ The early phase, though marked by settlement relocation to hilltops, shows the continuation of the Late Neolithic

pottery tradition, whereas the late FN should be treated as the foundation period of an entirely new settlement organisation which, with some modification, continued in the EM I period. Other elements of FN II material culture, including pottery, can be treated as the direct predecessors of EM I characteristics. The links between LN and FN I, as well as between FN II and EM I, contrast with the numerous differences between FN I and FN II.

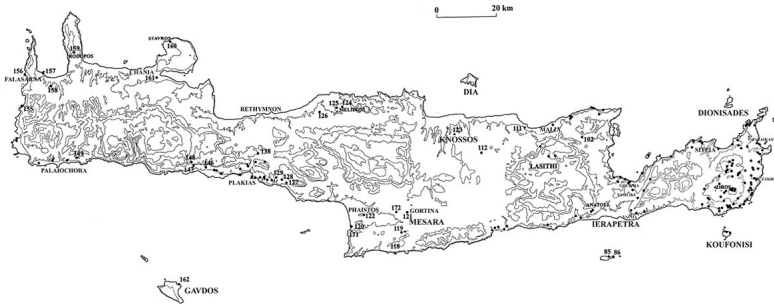


Figure 42.1. Map of Crete with Final Neolithic sites (Nowicki 2014).

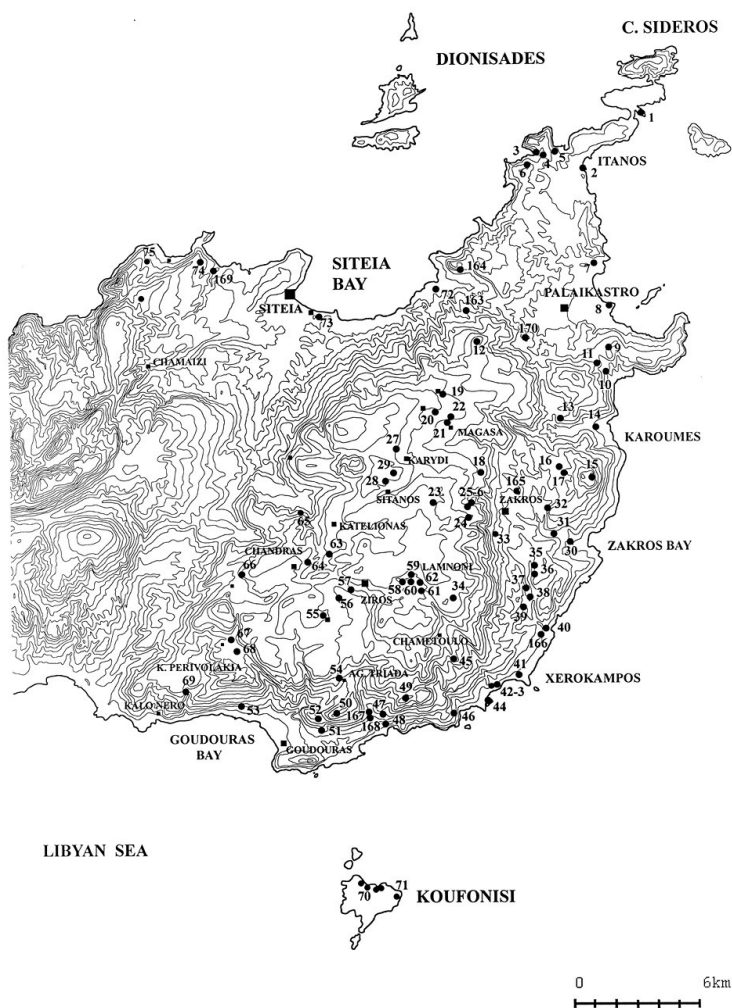


Figure 42.2. Map of the East Siteia peninsula with Final Neolithic sites (Nowicki 2014).

Table 42.1. Comparison of different chronological systems used for the Cretan FN.

<i>Vagnetti 1978</i>	<i>Tomkins 2007b</i>	<i>Nowicki 2002</i>	<i>Tentative absolute dates (BC)</i>	<i>Settlement development</i>
EM I	EM IB	EM I late		Improving settlement stability, relocation to less defensible places, and nucleation around the major habitation centers.
	EM IA	EM I early		Settlement consolidation, reorganization of territorial defense, and dispersion.
FN late	EM IV	FN II	3100/3000	"Colonisation" of the entire Cretan coast and construction of new territories based on defensible and fortified sites, followed by an inland expansion.
FN early	FN III	FN I	3400/3300	Shift of settlements to defensible hilltops.
LN	FN II FN IB FN IA	LN	3700/3600	Settlement pattern unknown apart from Knossos, a few open-air sites (Katsambas, Magasa? Mitropolis), and caves.
	LN		4500	

Settlement pattern changes in the Early and Late Final Neolithic

The problems concerning the transition between the Neolithic and the Early Bronze Age in Crete are many and complex; a detailed presentation of archaeological evidence and a thorough discussion of the subject were published elsewhere.¹¹ In this very short paper I will touch upon only a few selected aspects of settlement patterns and territorial organisation which reflect the nature of changes between the “old” Neolithic world and the emergence of the “new” Early Bronze civilisation in Crete, something neglected in most of the studies on the subject.

As mentioned earlier, the beginning of the last part of the Neolithic in Crete, here described as FN I, is marked by the foundation of settlements on the naturally well-protected hills of Phaistos, Gortyna, and probably also on Psilo Kasteli, in the Mesara (Fig. 42.3). This relocation must have been caused by growing insecurity and unlikely to be due to environmental factors or social development (as once argued by L. Vagnetti).¹² The question arises: was this insecurity a local phenomenon limited to the Mesara, or was it a general problem which concerned other parts of Crete and other regions in the Aegean, too? The fact that no settlement changes have been recorded at Knossos does not answer this question, but also does not contradict the Mesara case.¹³ The continuing occupation of the Knossos region through

LN and FN may have been due to the sizeable local population which considerably outnumbered those of other Cretan regions and was able to effectively resist potential newcomers (whatever these newcomers' origin was). New evidence confirming insecurity as the main motivation of the FN I settlement relocation in the Mesara has been revealed by excavations at a series of defensible or hardly accessible sites along the eastern side of the Ierapetra Isthmos. First and most spectacular is Katalimata in the Cha Gorge (Fig. 42.4)¹⁴ – a site extremely difficult to inhabit, but very easy to defend. The pottery unearthed at Katalimata can be securely dated by numerous parallels from early FN Phaistos and Gortyna.¹⁵ Another FN I hilltop settlement in the same region was excavated at Azoria, east of Kavousi,¹⁶ and other sites have been identified (on the basis of a surface material) on a rocky ridge east of Pano Chorio (south of Katalimata), and on Pandotinou Koryphi, north-west of Ierapetra.¹⁷ Similar defensible sites are also known from the hills above the coastal Malia-Chersonisos plain, and in the Mylopotamos and Rethymnon regions (Perama Ta Grivila/Ayios Phanourios and Viran Episkopi).¹⁸



Figure 42.3. Psilo Kasteli (K) in the Mesara from south.

Apart from the phenomenon of defensible sites, other aspects of the FN I settlement pattern are almost unknown. But there is a significant exception – the Ierapetra Isthmos. Here, four defensible

settlements are complemented by several other sites of LN or FN I date, which allow for some hypothetical reconstruction of the settlement system, not only during the period of insecurity, but also shortly before it. The four mentioned defensible settlements were all located on hills, rocky ridges and cliffs high above the eastern edge of the Ierapetra Isthmos, between Kavousi on the north and Vainia on the south. From the north to south these are: Azoria, Katalimata, Epano Chorio and Vainia Stavromenos. The location of all these sites clearly indicates a retreat from the plain towards the steep western slopes of the West Siteia Mountains. Exactly the same “refuge areas” were occupied during another period of disturbances and “sea-born raids” – during LM IIIC. This shift in the Ierapetra region can be seen as a parallel to the process observed in the Mesara, with LN people looking for security on the hills above the northern edge of the plain. We may assume, therefore, that the pre-FN I settlement pattern in the Kavousi-Ierapetra area was characterised by small dispersed sites located in the bottom of the valley or close to the coast. To the latter group of sites may belong Gournia Sphoungaras,¹⁹ most probably a single household or at most a small hamlet of two or three families, located in a small coastal valley against a rock *abri* about 200 m from the sea. This pattern of single household units with only a few larger settlements may have been a common feature of the earlier (LN) settlement organisation beyond Knossos. This conclusion can be supported by occasional pre-FN I habitation sites, either free-standing houses like Magasa,²⁰ or caves, like Voivoda near Katelionas, both in East Crete. Inhabitants of similar sites may have been the founders of FN I Katalimata, which, based on excavated and surface material, consisted of two to four households. Similar size can be proposed for the settlement on the ridge above Pano Chorio. The settlements of Azoria and Pandotinou Koryphi were inhabited by more people – between five and ten families seems a reasonable estimation, considering the size of the sites and preserved remains of house structures. In

this case, therefore, we may reconstruct a pattern (well-known from other insecure periods) in which relocation to a defensible place was accompanied by a concentration of population from the earlier more dispersed habitation places.



Figure 42.4. Monastiraki Katalimata (1) from south.

In the following period, the settlement pattern was considerably remodelled. Most of the old defensible sites were abandoned and replaced by substantially larger settlements (less defensible though still on hilltops) which allowed for easier exploitation of arable land nearby and better control of the territory around. In the FN II period the Ierapetra Isthmos was dominated by two large settlements: Vasiliki Kephala in the northern part, and Vainia Stavromenos in the southern. The latter was occupied already in FN I, but its earlier phase was probably limited to the most defensible part of the hill, whereas by FN II the settlement expanded to the lower slopes. The appearance of these two large settlements was probably the final act in the dramatic clash between the native Neolithic Cretans and different groups of immigrants coming to Crete from the east and north-east, and the subsequent process of carving out a new territorial ownership by these groups. The FN II territorial division of the Ierapetra Isthmos

into two territories suggests complex social organisation, with some kind of authority co-ordinating communities larger than a single village. This kind of territorial organisation with clear borders between two FN II groups continued in the Ierapetra Isthmos through the early EM I period, and perhaps later. Similar development during the FN II period has also been observed in other parts of Crete.

Explaining settlement organisation

The early FN sites in the Mesara and the Ierapetra Isthmos, especially Katalimata, pose the following questions: 1) What was the reason for such a dramatic change of settlement pattern? 2) How did the problem of insecurity arise? 3) Is the shift of early FN settlements to defensible locations directly related to the appearance of many new elements in material culture and social organisation during the late FN? 4) How long did the early FN period last? The answers to these questions rely on the interpretation of the Latest Neolithic phase, FN II, which probably lasted 200–300 years in the second half of the 4th millennium BC. This phase, though commonly regarded as Neolithic, must be seen as a direct predecessor of the Bronze Age in Crete, prefiguring later social, economic and technological innovations. Clear differentiation between the two last Neolithic phases in Crete seems to be the most important step towards understanding the origins of the Bronze Age civilisation on this island.

It is the late FN period that is characterised by a sudden appearance of a large number of new settlements all over Crete. The most characteristic features of these newly founded FN II settlements in Crete are their 1) natural defensibility, sometimes reinforced with fortification walls constructed of large boulders along one or two sides of a settlement, where access was easiest, 2) preference for coastal locations, and 3) concentration in certain areas, including regions which were marginal for later Bronze Age communities, in clusters which suggest the territorial organisation

above the single-settlement level. These characteristics may indicate 1) serious tension between different groups within the new FN II population, 2) a strong orientation towards marine activity, and 3) temporary colonisation of the coastal areas, and the inland valleys connected to them, without considering the environmental potential of these regions, which were unable to support long-lasting occupation. The latter two factors alone may indicate that the “colonisation” took place from the sea, and by people with no or little knowledge of local resources. The dynamic development of settlement patterns in the “colonised” areas through the FN II and early EM I period indicates that the settlers had to adjust their needs quickly to the resources they found in the targeted areas. The temporary “overpopulation” of some areas is obvious, such as in some of the East Siteia plateaus²¹ and coastal areas lacking adequate fertile hinterland, as for example in Palaiochora Nerovolaki.²² This short-lived “overpopulation” phenomenon of some areas during the FN II period, but not before and not after, is another important argument supporting the hypothesis that the FN II settlements represent mostly immigrants from beyond Crete and not native Neolithic inhabitants entering “marginal areas”.²³

The transition between the Neolithic and the Early Bronze Age in Crete, namely a few centuries of the FN II and the first century of the EBA I (according to the chronology proposed here, ca. 3400/3300–3000 BC), was not only a time of abrupt changes in settlement patterns, but also saw change in every aspect of material culture, in particular architecture, as well as pottery production and metallurgy. During this period, it seems either that social and economic development sped up or that a new and more developed population moved onto the island. However poor architectural remains are, they show elements unknown earlier (at least beyond Knossos and Phaistos) such as defensive enclosures and masonry using large boulders, and well-defined clusters of houses built in a compact way within a settlement larger than a

few houses (Fig. 42.5). FN II settlement introduced, for the first time in Crete, a type of village that was more or less permanently attached to a particular territory, with a continuity of occupation unknown before apart from the largest settlements such as Knossos and Phaistos. For the first time, we see remains of medium and large settlements (over 2000 and over 8000 sq m) in almost every part of the island where the settlers might find resources for permanent habitation.

Settlement organisation demonstrates much more sophisticated social structures and the first clear signs of strictly controlled territorial divisions between neighbouring communities. The latter consisted of several settlements occupying geographically differentiated (by natural borders) areas. The best examples of such new territorial organisation during the FN II period can be found in the Eastern Siteia peninsula. Here, it was the FN II colonisation which laid the foundation for EM territorial organisation and the later development of MM regional centres, such as Petras, Palaikastro, and Kato Zakros. A high level of co-ordination was needed to set such a settlement pattern including sites with specialised function, as for example “lookout” sites and “border” sites. Both categories are well represented in the Eastern Siteia region. Among “lookout” sites one can mention Sargou Kephala and Chandriani Kephala (Fig. 42.6), and among “border” sites Chochlakies Kastelas, Analoukas Strongilos (Fig. 42.7) and Palaikastro Lidia Kephala.

Negotiations between different FN II communities, visible in the location of settlements and their subsequent development or decline and abandonment, as well as a reinforcement of natural boundaries represented by specialised border sites, including sites with defensive walls, were important elements of the new territorial organisation, and not attested in the distribution and location of the FN I sites. The development of this new and more complex settlement system is even better evidenced during the early EM I period, when “territorial attachment” got another

element of stability (or at least we can see this element for the first time) – communal tombs. This organisation seems more likely to be brought by new people than to be developed by the local inhabitants, who did not show any signs of a comparable territorial organisation in the FN I period.

Most FN II settlements are new foundations, without any earlier FN I roots. Those few which have, shown by a sequence of pottery going back to FN I (as for example Vainia Stavromenos and Petras Kephala), require individual explanations. The links between settlement patterns in FN I and FN II are weak and limited to a few regionally important sites in the region. In contrast, the FN II settlement pattern in Crete resembles closely patterns known from the LN II Dodecanese and the later part of the Late Chalcolithic in South-West Anatolia. Comparisons between different parts of Crete show some differences between the FN II groups which did not result from an adaptation to the local environmental conditions, but were probably related to their past experience and culture. It would be naïve to look for a single origin point of these FN II settlers and for one “event” type of invasion. At present three distinctive phases of the transition between the Late Neolithic and the Early Bronze Age can be identified in Crete: 1) the FN I relocation to defensible sites; 2) the FN II “explosion” of settlements, especially along the coast; and 3) settlement consolidation and territorial reorganisation, the appearance of more advanced technology of pottery production including common use of the pottery kiln, the introduction of large storage vessels (pithoi),²⁴ and the appearance of the first painted pottery, and new features and elements in architecture, including stone built communal tombs – all characteristics visible from the very beginning of the EM I period. These three phases probably represent only the most distinctive markers of a long process, lasting several centuries, during which different groups of native and foreign origin merged together in different ways, depending on the phase of the process and the region of Crete. The

interaction between these groups was presumably different in the early and late stage of the FN transition, and also different in the Knossos region, the Mesara and the Eastern Siteia peninsula. The varied cultural and geographical origins of the newcomers may be reflected by some regional variation in pottery fabric groups and in chipped stone industries, especially between the northern and southern coasts of Crete. The northern coast interacted more with groups which appeared at the same time in the Cyclades, whereas the eastern and southern coast shows more similarities to the Southern Dodecanese and Southern Anatolia, especially Lycia.

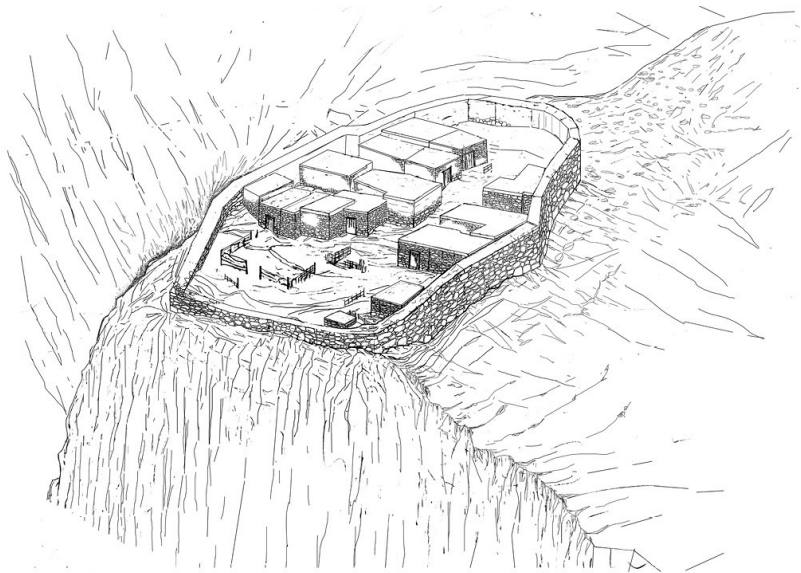


Figure 42.5. Reconstruction of Livari Katharades.

Even if some social complexity and territorial claims existed in the largest LN and FN I settlements, namely Knossos and Phaistos, nothing similar has been attested in other regions which came to house FN II population centres. If these new FN II provincial “territories” were the result of the so called “marginal colonization”, as P. Tomkins recently proposed,²⁵ Knossos and Phaistos would have to have had enormous social and economic potential, unrecognised so far, to be able to colonise so quickly

(within 200–300 years) so many regions with so many new settlers, and introduce a new settlement organisation and new architectural tradition, completely different from the previous one.

The “marginal colonization” theory for the FN II settlement expansion in Crete is additionally contradicted by the pattern of new settlement, its development during the FN II period, and by the topography of new sites. The adoption of defensible locations is complex and cannot be interpreted on the basis of a few excavated sites: we must consider it against the broader settlement background of the Aegean. The notion of local competition as the reason for defensibility in the FN period is also contradicted by evidence from the Dodecanese which experienced similar settlement phenomena during the 4th millennium BC. Should we speculate that the islands east of Crete were affected by “marginal colonization” coming from Crete, as well? The LN II (Cretan FN) population boom in the Dodecanese is matched by settlement changes during LCh along the south-western and western coast of Anatolia, especially well visible in the Bozburun and Reshadiye peninsulas, where a number of hilltop and defensible settlements show similarities to contemporary sites in the insular Aegean ([Fig. 42.8](#)).



Figure 42.6. “Lookout” sites of Sargou Kephala (1) and Chandriani Kephala (2) from west.



Figure 42.7. “Border” site of Analoukas Strongilos (2) and Modi (1) from north.

Conclusion

Many of the FN II sites continued into early EM I, but were abandoned before the more advanced phase of that period. This phenomenon can be explained by the fact that much of the settlement system of the earliest phase of EM I was the result of tension created by the sudden appearance of a great number of new settlements all over Crete in the FN II period. However, the early EM I settlement pattern quickly responded to the problems created by the FN II colonisation and the aforementioned “overpopulation” of some regions. Better social organisation and land exploitation, as observed during early EM I, may have been the result of several centuries of migrations, colonisation, inland expansion and development of the first territorial units which affected Crete during the FN II period, in the second half of the 4th millennium BC. These territories consolidated during early EM I with the largest centers, often housing several tens of families, continuously growing by attracting inhabitants of other habitation sites nearby, as can be reconstructed in the Palaikastro – Maridathi settlement cluster. Open and non-defensible hamlets and farmsteads were built around regional centres, which often still had defensive characteristics. At least some territories were

guarded by fortified border outposts, which got more sophisticated constructions indicating the coordination of work by some kind of authority, supervising a territory and not just a single settlement. The social complexity of the early EM I communities, with their roots deep in the FN II period, was much more developed than recently suggested by J. Cherry²⁶ in his unjustified criticism of P. Betancourt's reconstruction of this period.²⁷



Figure 42.8. Late Chalcolithic defensible settlement above Eski Datca on the Reshadiye peninsula from west.

Notes

¹ Nowicki 2002.

² The terminology used in this paper is based on the chronology proposed first by L. Vagnetti (1973a; Vagnetti and Belli 1978) and then further elaborated by the author (Nowicki 2002; Nowicki 2014). It does not follow “Tomkins’s terminology” (Tomkins 2007b) with five phases of the Final Neolithic extending for almost 1500 years (4500–3100/3000 BC). Thorough discussion with the arguments against “Tomkins’s terminology” is presented elsewhere (Nowicki 2014).

³ As was proposed by P. Tomkins (2008, 38).

⁴ See for example Branigan 1970; Manning 1994; Manteli 1993;

Renfrew 1972.

5 Nowicki 2014.

6 Manning 1994; Tomkins 2007b; Warren and Hankey 1989.

7 Nowicki 2002.

8 The term “Final Neolithic” is not commonly used for the Aegean islands, especially the Dodecanese and the islands of the East Aegean north of the Dodecanese (see for example Sampson 1984; Sampson 1987); the term is also only vaguely defined in the Cyclades, where the beginning of the FN is even more problematic than it is in Crete, and chronology by “archaeological cultures” still seems to prevail (see for example Coleman 1977; Coleman 1992; Broodbank 2000; Mavridis 2010).

9 Nowicki 2002; Nowicki 2008a.

10 Vagnetti 1973a; Vagnetti and Belli 1978.

11 Nowicki 2014.

12 Vagnetti 1996.

13 Tomkins 2008, 38.

14 Nowicki 2002; Nowicki 2008b.

15 Nowicki 2008b.

16 Haggis *et al.* 2007.

17 Nowicki 2002.

18 Hood *et al.* 1964, 56–9.

19 Hall 1912.

20 Dawkins 1904–05, 260–8.

21 Branigan (ed.) 1998.

22 Nowicki 2002, 47–9.

23 The explanation of the FN II increase in settlement numbers as the result of colonisation of marginal areas was proposed by Tomkins 2008, 38–40, and earlier by Manning 1994, 232.

24 Betancourt 2008.

25 Tomkins 2008, 38–40.

26 Cherry 2012.

27 Betancourt 2008.

The introduction of pressure blade technologies into Crete in the late 4th millennium BC: Where, how, and to what end?

*Tristan Carter*¹

Introduction

The inhabitants of Early Bronze Age (EBA) Crete continued to make flaked stone tools throughout the 3rd millennium BC alongside those of metal, with Melian obsidian the primary raw material and pressure blade manufacture the dominant technical tradition.² This short paper investigates at which point, and by what means, this technical tradition was introduced into Cretan society, and considers the socio-economic implications of the adoption of this technology. The first evidence for the performance of this technique on Crete dates to the later Final Neolithic (FN), *i.e.* the second half of the 4th millennium BC. Initially production appears to have been restricted to a handful of larger, well-connected sites of the period, specifically the north coast “gateway communities” of Kephala Petras and Nerokourou (Fig. 43.1), with quantities of these blades then being procured by elites at such major sites as Knossos and Phaistos. While it is currently impossible to state with certainty as to where the

technique originated, various lines of evidence suggest that this new skill ultimately came from Anatolia, albeit accessed via new longboat interactions with intermediary Cycladic populations. It is claimed that the introduction of this technique to Crete provided members of the recipient communities with new means of creating and expressing social distinction through the exclusive performance of a skilled technique that cross culturally has lent itself to specialisation.

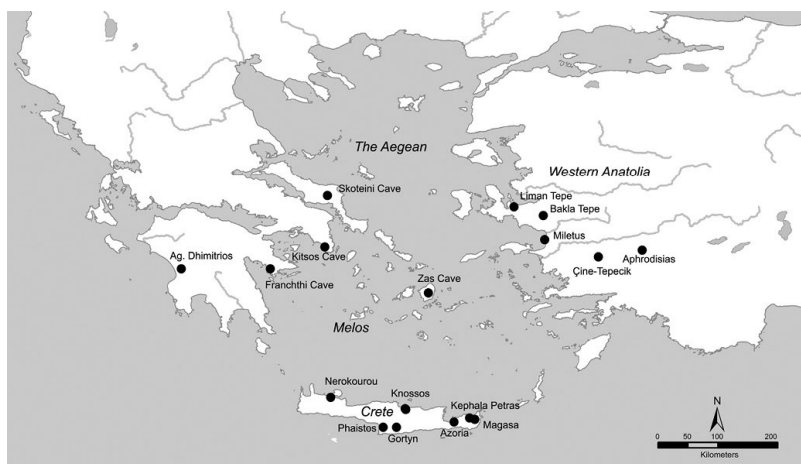


Figure 43.1. Sites and locations mentioned in the text (M. Milić).

Pressure blade technologies: Nature and significance

The manufacture of blades using the pressure technique is a skilled method that involves carefully preparing a nucleus, whereby elongated blanks can be systematically removed through the application of pressure upon the core's so-called "striking platform" via the tip of a narrow tool made of wood, antler, bone or metal.³ By using a pressure flaking tool the knapper can precisely determine the point of fracture initiation, thus enabling a carefully controlled reduction of the core and the generation of highly regular prismatic blades; those from the full rhythm of production (*plein débitage*) have parallel margins and dorsal ridges,

a constant thickness and limited longitudinal curvature (Fig. 43.2). The ability to reduce the core in such a controlled and standardised manner allows the knapper to maximise the core's potential productivity,⁴ with the blades' straight edges making them excellent blanks for hafting, while obsidian examples permit precision cutting and incision, with references to their use for depilation, blood-letting and surgery.⁵

Much has been written concerning the skills required to perform this technique successfully, not least the careful shaping and preparation of the core,⁶ while blade removal is in itself a difficult and demanding practice that needs an extensive knowledge of rock-flaking properties and good neuro-muscular coordination.⁷ That said, archaeological observation and experimental replication has demonstrated clearly that there are a number of different pressure blade techniques, the distinctions pertaining to the flaking tool employed, and how the core was prepared and reduced, all of which have implications for the scale of the final product.⁸ Indeed, pressure products in the archaeological record range from Siberian Upper Palaeolithic micro-blades of under 2 cm,⁹ to a 43.3cm long flint blade from the famed Chalcolithic cemetery of Varna in Bulgaria.¹⁰

Given the skill-levels required to produce blades by pressure flaking, the technique is often considered to be the remit of craft specialists.¹¹ Cross culturally, pressure blade production tends to be organised exclusively, often restricted to the region's most important communities, with preferential access to those who wielded this craft a recurrent means by which elites came to create and express social distinction.¹²

In the Aegean, pressure blades first appear on Mainland Greece during the Initial Neolithic (IN) just after 7000 BC, one of a number of foreign practices introduced to the region alongside domesticated plants and animals.¹³ By the EBA, some 4000 years later, pressure blade production, primarily employing Melian obsidian, was the dominant tool making tradition throughout

Southern Greece, the Cyclades and Crete.¹⁴ During this time pressure blades did indeed appear to have been knapped by specialists, with Perlès¹⁵ arguing for itinerant craftspeople performing their craft amongst the Neolithic villages of Northern Greece, while Bronze Age production seems to have been largely under the control of regional centres.¹⁶

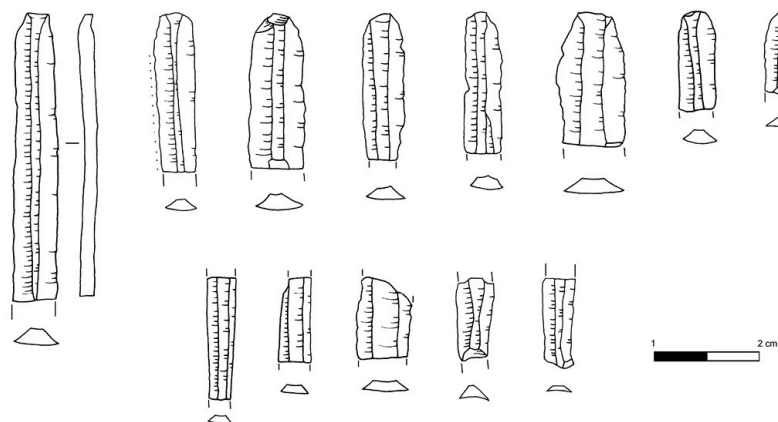


Figure 43.2. Obsidian pressure blades from the 3rd millennium BC site of Moni Odegetria (drawings by M. Milić).

Pressure blade technology in prehistoric Crete

While a number of Neolithic Cretan sites have been excavated, the lack of final publications means that relatively little is known about the island's lithic traditions and their relationship to contemporary mainland technical practices. Indeed, only three assemblages spanning 4000 years have been published in any detail (Fig. 43.1), namely those from Knossos (IN), Azoria (FN III), and Nerokourou (FN IV). The aim of this short section is to document what we know concerning the heritage of pressure blade technologies on Crete, demonstrating that while there was a low-level consumption of such products from the IN onwards, it is not until the late 4th millennium BC (FN) that the tradition starts to become the dominant mode of tool production on the island. In discussing the sub-phases of the Cretan Neolithic, I employ the

chronological scheme developed by Tomkins.¹⁷

The earliest evidence for pressure blades comes from IN Knossos (Fig. 43.1), with two medial fragments made of Melian obsidian from the basal stratum X layer dated to the end of the 8th millennium BC.¹⁸ These pieces, along with nine percussion blades, represent a tiny proportion of the total chipped stone assemblage (3–8%) which is otherwise dominated by flake material; moreover, the lack of manufacturing debris suggests that these blades were procured ready-made, potentially from non-Cretan populations.¹⁹ Throughout the Early–Late Neolithic I (7th–early 5th millennium BC) blades continued as a minority component of Knossian assemblages ($\leq 6\%$), with percussion products more common than those of pressure,²⁰ and production debris largely absent until at least the end of the Middle Neolithic. By the Late Neolithic (6th–5th millennium BC) percussion blade traditions appear to be the norm on Crete, as for example, at the small LN I site of Magasa on the eastern end of the island,²¹ and FN III Azoria, a small upland site in East Crete where the blades were all made from local chert.²²

It is not until FN IV (*ca.* 3300–3000 BC) that we finally have clear evidence for actual community based production, rather than the procurement of ready-made blades, with on-site pressure blade manufacture attested at Nerokourou and Kephala Petras on opposite ends of the island's north coast (Fig. 43.1).²³ These obsidian dominated assemblages contain cores and associated production debris, with the blades at the latter site having been pressure flaked using a copper-tipped tool.²⁴ Elsewhere the situation is less clear. While there are references to pressure flaked obsidian blades from FN IV Gortyn, Knossos,²⁵ and Phaistos,²⁶ the lack of detailed publication makes it difficult to ascertain whether they were made by these communities, or procured ready-made from the well connected, obsidian rich north coast sites.²⁷ Given that in the subsequent EBA the distribution of pressure blade cores and other diagnostic manufacturing debris is restricted to the

major centres of the period,²⁸ it seems not inconceivable that the technology was similarly controlled as a form of social capital in FN IV.

It is the aforementioned issue of socio-economic connectivity and factional status that we believe is central to understanding which Cretan communities first gained access to a pressure blade technology and the processes through which the tradition came to be adopted. We develop this argument below, but first it is necessary to document those regions where the technique was already being employed prior to its appearance on Crete.

The origins and mode of introduction of the technology

Given that there has been no evidence to suggest that pressure blade technology was invented independently on Crete, it follows that the tradition must have been introduced from a region or regions where it was already established. Those proximate areas with the longest heritage of this technique comprise mainland Greece and Western Anatolia, where the tradition was established as part of Neolithic farming life during the early 7th millennium BC.²⁹ Moving up to the 4th millennium BC, pressure blade assemblages are recorded throughout Southern Greece (Fig. 43.1) from (Final Neolithic) Ayios Demetrios in the Western Peloponnese,³⁰ to the Skoteini Cave in Central Euboea,³¹ via the Franchthi and Kitsos Caves in the Argolid and Attica respectively.³² At much the same time (Late Chalcolithic 4) in Western Anatolia the same general tradition is documented at Bakla Tepe, Liman Tepe,³³ Melitos,³⁴ Çine-Tepecik³⁵ and Aphrodisias³⁶ amongst others. Finally, this technology seems to have been introduced into the Cyclades at about the same time it was being adopted by Cretan populations, the earliest evidence coming from FN levels at the Zas Cave on Naxos.³⁷

As to which populations came to introduce the technique to Cretan communities, it is difficult to say. The main problem is the

lack of publications of pressure assemblages from the FN Aegean and surrounding regions (the mainland is an honorable exception), making it impossible to undertake the kind of detailed comparative analysis of production strategies and end-products to build a case as to the origin of the Cretan tradition. Theoretically we could consider the FN IV ceramic assemblages to provide proxy data concerning off-island relations and by extent the routes through which pressure flaking could have been introduced, yet the material embodies links to all of the aforementioned regions, not least through these populations' common use of "cheese pots".³⁸ The most important point to take from the ceramic evidence is that the greatest concentration of imports and local emulations of foreign styles and techniques are, as with the obsidian and pressure-flaking, concentrated at the two north coast "gateway" communities of Kephala Petras and Nerokourou.³⁹



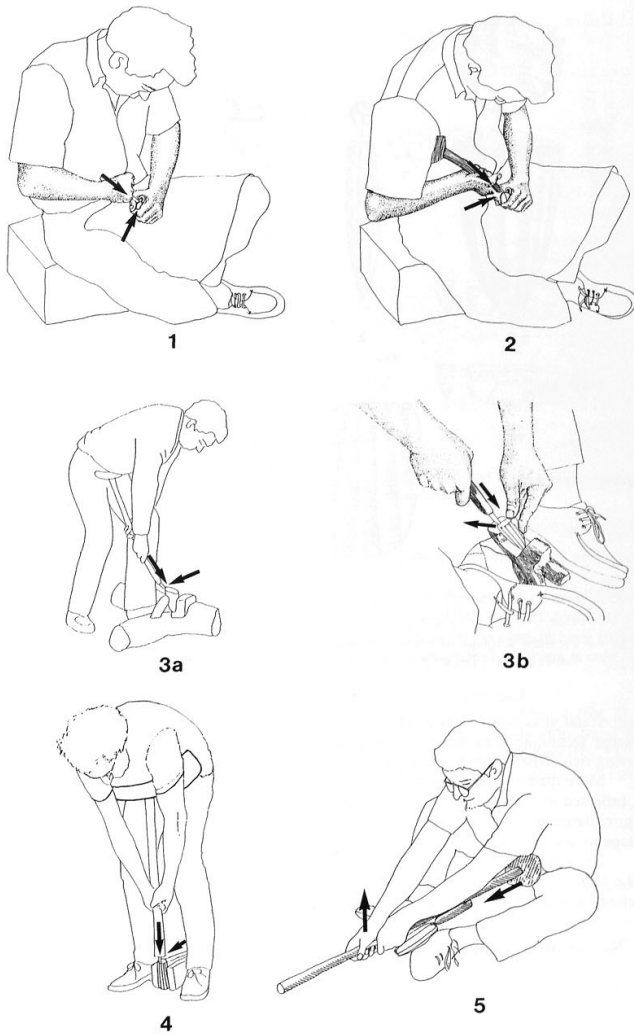


Figure 43.3. Different pressure blade techniques based on experimental work (after Inizan et al. 1999, fig. 30).

While Nowicki⁴⁰ has suggested that Anatolian migrants were responsible for introducing foreign material culture and practices into FN Crete, we prefer to accord certain Cretan populations with the primary agency in these cultural and technical developments. Y. Papadatos and P. Tomkins⁴¹ discuss how the FN development

of longboat technology led to the emergence of a small number of well-connected trading sites in the Aegean, such as East Crete's Kephala Petras. Through the ability of these communities to make and crew these vessels, they were able to monopolise access not only to such distant and valued resources as obsidian and metals, but also to their subsequent crafting. The adoption of pressure-flaked blade and metalworking technology would thus have provided Cretan factions with a new form of social currency, through their exclusive performance of these foreign technologies and the use and exchange of their distinctive products.

Conclusion

The earliest evidence we have for the on-site performance of the pressure-blade tradition (Fig. 43.3) comes from the two FN IV sites of Kephala Petras and Nerokourou, dating to the later 4th millennium BC. While the technique could theoretically have been adopted from a number of surrounding populations, we believe that the Cretan tradition ultimately came from the inhabitants of the Eastern Aegean islands and Western Anatolia, albeit quite possibly articulated via connections with intermediary Cycladic communities whose own knappers were adopting pressure flaking at broadly the same time. While some have argued that the technique's importance lay in its product standardisation and raw material economisation,⁴² we believe that the tradition's socio-economic significance lay primarily in its skilled nature, with preferential access to the craft specialists responsible for pressure flaking and metalworking providing certain characters with means to create, express and maintain power structures anew.

Notes

- ¹ I thank the late Professor J.D. Evans for his permission to study the Knossos trench FF obsidian in 1994, plus Ç. Çilingiroğlu, N. Kolankaya-Bostancı, V. Mastrogiannopoulou, M. Milić and P. Tomkins for information and feedback. M. Milić produced both the

map and line drawing.

2 Carter 2009, 203–4.

3 Inizan *et al.* 1999, 32, 76–9.

4 Sheets and Muto 1972.

5 Carter 1994, 136.

6 Crabtree 1968, 451.

7 Perlès 1990b, 27.

8 Clark 2012; Pelegrin 2012.

9 Inizan 2012, 23, fig. 2.7.

10 Pelegrin 2006, 49–50, fig. 5.

11 Clark 2003.

12 Clark and Parry 1990; see also Carter 1994, 137–8; Carter 2008a, 228–9; Clark 1987; Hirth 2012.

13 Perlès 2001, 43.

14 Carter 2009, 203–4.

15 Perlès 1990b.

16 Carter 1994; Parkinson 1999.

17 Tomkins 2008.

18 Conolly 2008, 80, fig. 5.6; Kaczanowksa and Kozłowski 2011, 71–2.

19 Conolly 2008, 80–1.

20 Conolly 2008, 87.

21 Dawkins 1904–5, 265–6, pl. VIII.19–23.

22 Carter 2007.

23 A pressure blade is noted amongst the trench FF, level 17 material dated by Tomkins (2007b, 38) to FN III, *i.e.* ca. 3600–3300 BC.

24 Christopoulou 1989; D’Annibale 2008.

25 Trench FF, level 10.

26 Evans 1964, 54; Evans 1971, 114; Tomkins 2007b, tab. 1.6; Vagnetti 1973b, 4, 7.

27 Papadatos and Tomkins (2013, 365–6) emphasise how little obsidian has been recovered from FN Knossos compared to Kephala Petras.

28 Carter 2004, 291–8.

29 Perlès 2001, 43; Reingruber 2011, 296.

30 Moundrea-Agrafioti 2008.

31 Perlès 1994.

- 32 Perlès 1981, 155; Perlès 2004, 166.
- 33 Kolankaya-Bostancı 2004, 160–78, 182–3.
- 34 Von Graeve 1999, 586.
- 35 Günel 2008a, 137.
- 36 Blackman 1986, 137.
- 37 Zachos 1990, 31.
- 38 Papadatos and Tomkins 2013, 358–61; see also Nowicki 2002.
- 39 Papadatos and Tomkins 2013.
- 40 Nowicki 2002.
- 41 Papadatos and Tomkins 2013.
- 42 Sheets and Muto 1972; Torrence 1979.

The earliest phase of the Final Neolithic at Phaistos in a wider Cretan context: New perspectives

*Serena Di Tonto*¹

Introduction

The excavations at Phaistos on Crete, site of the well-known Minoan Palace, located in a strategic place controlling the Mesara Plain, have yielded numerous relevant findings of the Palace centre as well as of the periods before its emergence.

Several trenches opened over the entire area of the Phaistos Hill, from the 1900s up to recent years,² have brought to light remains of the Prepalatial and the Neolithic periods. Abundant Neolithic pottery was identified in almost all the trenches and in several cases a complete stratigraphic sequence was recognised. On the basis of these sequences³ it was possible to distinguish at Phaistos two Neolithic levels, often superimposed, both pertaining to the Final Neolithic. The two Final Neolithic phases identified on a stratigraphical level, both in the past and in the most recent excavations, have been labelled “*Neolitico Finale Inferiore*” and “*Neolitico Finale Superiore*.”⁴

These phases can be identified from the pottery findings as well. The first (Phaistian FN I) was characterised by the presence of Coarse ware and Fine Burnished ware, sometimes incised,

impressed, grooved or encrusted with white or red paint. The second phase (Phaistian FN II) was distinguished by the spread of new pottery wares that appeared only occasionally at the end of the FN I: Slipped and Burnished ware, Pinkish Burnished ware, sometimes decorated with *scribble burnish* (Fig. 44.1), and “Granulata” ware. Fine Burnished ware is present in large quantities, though it was made with less precision. The decorated fragments decreased considerably during FN II and the fragments encrusted with red ochre only rarely presented accurate patterns, instead being usually totally crusted.

The excavation conducted by V. La Rosa in 2004⁵ under Room XIX of the First Minoan Palace, already partially excavated by L. Pernier in 1906, provided significant new information regarding the Neolithic sequence. In this trench, initially excavated to clarify the episodes successive to the destruction of the First Palace and to date the foundation of the Second Palace, important findings were made regarding the FN, since several superimposed Neolithic levels were identified, showing the articulation and the length of the Phaistian Neolithic period.

During the oldest phases the area was involved in several consecutive cultural processes (two floor levels, vestiges of a small stone hearth and levels of accretion). Moreover, it seems that working activities of transformation and preparation were carried out; these actions at least for the final part of the period appear connected with a house, the plan of which is not possible to restore since only a small portion of a wall was found.

The presence of several chipped stones, fragments of cooking pots and several animal bones, most likely food remains, coming from the entire area and from an excavated pit, testify to various activities.

The pottery fragments associated with these oldest phases belong mostly to large Coarse ware storage vessels and cooking pots as well as to several fragments of Fine Burnished ware, rarely decorated, pertaining to small plates and several multi-shaped

bowls of different size (hemispherical bowls with rounded or flaring profile, S-shaped bowls, carinated bowls, large bowls with everted rim and deep vessels with splayed walls), and some spouts.

When the structure, representing the last episode of the first phase of the Neolithic period, was destroyed and levelled, the area changed function and became an external area used for some repeated communal ceremonies connected with the consumption of food and drink, as testified by the presence of large quantities of pottery and food remains and, at the end of the period, by the construction of a huge external hearth. These episodes were characterised by the presence of an extremely distinctive pottery set in the newly introduced Red Slipped and Burnished ware. This set included jugs, straight-sided bowls, carinated bowls with offset rim and a peculiar type of bowl with a horizontal spout.

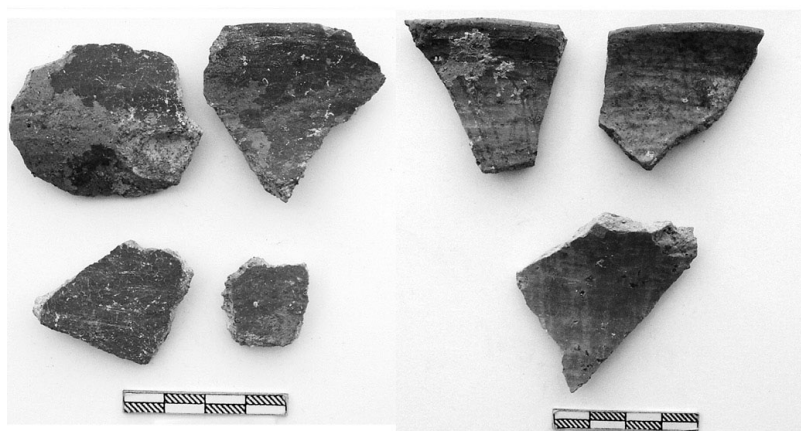


Figure 44.1. Examples of Slipped and Burnished ware and Pinkish Burnished ware.

Besides the Red Slipped and Burnished ware, often mottled due to the firing, other wares appeared at the end of the Phaistian FN I period and spread during the last Neolithic phase: Pinkish Scribble Burnished and “Granulata” ware, that together with the Coarse and Fine Burnished ware formed the bulk of the Phaistian

Neolithic pottery.⁶

This newly acquired sequence and the distinctiveness of the context have focused the debate in recent years mainly on the execution of specific rituals on the Phaistos Hill and on the passage to the EM.⁷ Here attention has been focused on the first occupational phases and in particular on the pottery characteristic of this phase, the Fine Burnished ware, which is the most widespread from the first occupation on the bedrock.

The Fine Burnished ware retrieved in all the excavations at Phaistos was characterised by brown to light-brown fabric with small lithic inclusions. The thinner fragments show a more purified fabric, while the fragments pertaining to larger vases had a fabric with more inclusions. The surfaces were black or brown to reddish-brown and there were only rare examples in lighter colours. The walls were burnished with a hard and smooth tool in order to obtain a carefully burnished surface. Sometimes the vases had a scribble or pattern burnish decoration,⁸ a technique that would develop further in the EM. Moreover, it is possible to identify other types of decoration: impressed, incised, grooved and encrusted.

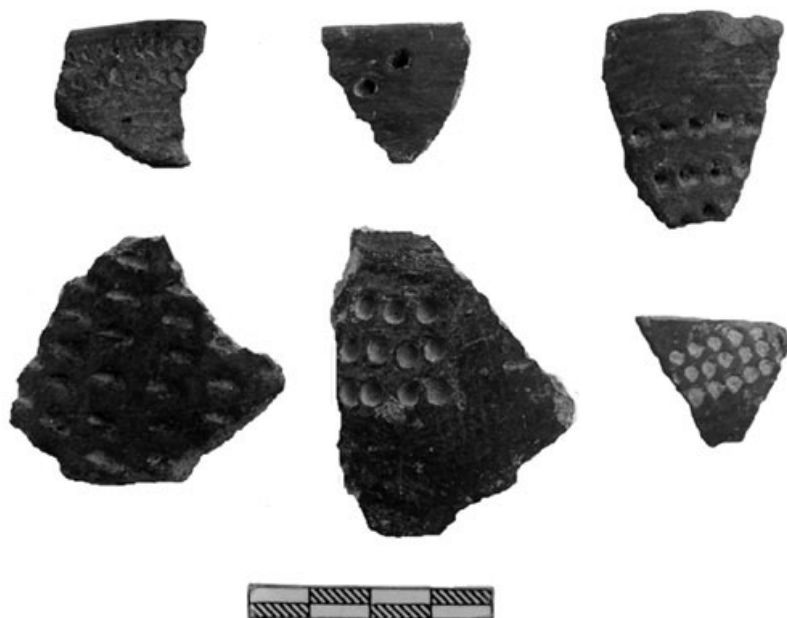


Figure 44.2. Some examples of impressed decoration.

The impressed decoration represents the ornamentation used most frequently on the Phaistian pottery (Fig. 44.2). The impressions were made with tools of different shape – rounded, quadrangular, triangular, *etc.* – in various schemes, varying from isolated jabs, simple or multiple linear sequences of jabs to groups of impressed jabs forming patterns or filling parts of the vase.⁹



Figure 44.3. Fragment decorated with incisions.

Incised decoration was also rather widespread in the first part of the FN period.¹⁰ It is represented by several motifs, such as vertical or horizontal ladders, bands of parallel lines intersecting horizontally or vertically, chevrons, triangles filled with lines and the zig-zag, which was a common motif at Phaistos (Fig. 44.3). Sometimes the incisions were combined with other forms of

decoration, such as pattern burnishing or encrustation with red or white paste. Some fragments decorated with incisions (ladder with diagonal “rungs”) found in the lower stratum of Trench I seem to be the oldest fragments retrieved on the Phaistos Hill, giving an approximate date for the first time the hill was settled.¹¹

The grooved decoration is another type widespread at Phaistos (Fig. 44.4). The corrugation was used generally only on a limited part of the vase (e.g. the shoulder or the area between the handles), and on a small number of forms (e.g. carinated cups, deep bowls or bowls with everted rim).¹²

A peculiar type of adornment used on the burnished Neolithic pottery at Phaistos was the encrustation with white or red paste. While the white decoration is not so widespread and was generally used to fill incised or impressed decoration, red paste represented a characteristic feature of the Phaistian Neolithic.¹³

Red ochre was applied to the vase after firing, so the fragile pattern is not always visible. The paste was used to produce patterns on the lip, spout or on the body of the vase, such as crossed bands (Fig. 44.5a), zig-zags (Fig. 44.5b) and parallel bands, and also to fill incisions and impressions or to emphasise the joint between the neck and the shoulder of the vase. Sometimes the entire surface of the vase was encrusted with ochre on both the exterior and the interior.

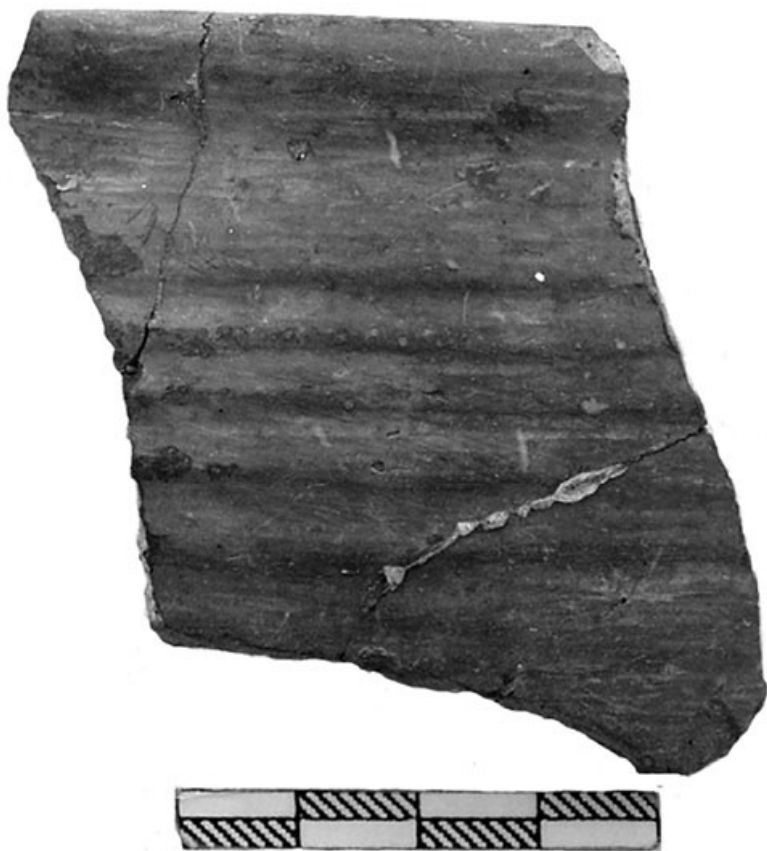


Figure 44.4. Example of grooved decoration.

The Fine Burnished ware, from the first occupational phases, shows a wide variety of forms substantially homogeneous across the two phases, therefore it is not possible to isolate shapes present only in one of the two phases. The shapes identified were essentially connected with the serving and the consumption of food and drink. The presence of vases of different size could suggest the usage for different purposes or by a different number of persons. Vases for individual use, such as hemispherical bowls with rounded or flaring profile, bowls with everted rim, plates, *etc.* were numerous and varied;¹⁴ whereas the larger vases, used probably as collective vessels by a number of persons, were of

standardised form, such as bowls with wide everted rims and deep bowls with flaring walls.¹⁵

Very widespread, particularly in comparison with the other Cretan Neolithic sites, were the vases for serving liquids, such as bottles, jugs and bowls with wide everted rim and spout.¹⁶ This last shape, only now restorable thanks to the entire Slipped and Burnished ware specimen recently found, is thought to exist also in the Burnished ware, judging by the occurrence of numerous spouts and rims with the connection for beaks.¹⁷ All the spouts retrieved presented a precise burnishing on both sides, but the interior, most visible while pouring the liquids, was usually better finished.



a



b



Figure 44.5. Fragments encrusted with red ochre.

Since no published comparisons for this type of bowl are present in the Cretan Neolithic, it seems to be a prerogative of Phaistos both in the first and the second phase of the FN period.¹⁸

In the beginning, these bowls were manufactured in the Burnished ware, and then in the FN II predominantly in Red Slipped and Burnished ware, although burnished specimens are not lacking, indicated by the presence of several spouts also of large dimensions.¹⁹

To another peculiar shape, not restorable at the moment with certainty, belonged the several small burnished feet, found predominantly in the oldest strata.²⁰

The Fine Burnished ware pottery is present in large amounts in all the trenches opened on the Phaistos Hill. All the mentioned vases were used by the Phaistian Neolithic population in domestic contexts, where working activities of production were carried out daily.²¹ Some of them presumably were also utilised in special occasions of communal consumption of food and drink, as suggested by the remains found in some contexts, like in Levi's trench II in the Central Court (along the west side in front of the VIII column base).²² In these contexts several small vases (suitable to contain one or at most two portions) were found in association with communal vases, particular pots (such as the strainer encrusted with red ochre), large Coarse ware containers, shells, and several animal bones.

As can be seen, the site of Phaistos offers at the moment a privileged field for observing the Cretan Final Neolithic, not only because of the extent and the length of the occupation on the hill, but primarily for the quantity of materials retrieved in the excavations. Pottery in such quantities belonging to several wares and so many shapes has not been recovered anywhere else in Crete; in addition, there were also stone and bone tools, spindle whorls and a great amount of animal bones. Furthermore, characteristic and distinctive materials unknown at other sites are present at Phaistos, for example the red ochre encrusted sherds in the first phase and the Slipped and Burnished fragments in the last phase.

With the exception of Mitropolis, where some fragments were

found that are considered to be earlier,²³ the occupation of the hill of Phaistos corresponds to the first settling of the Messara Plain. The settling of the hill seems to date back to the FN II–FN III as defined by Tomkins in his recent reassessment of the Neolithic period at Knossos.²⁴ As already said, very few fragments found at Phaistos share some similarity with the FN II pottery at Knossos and could date the occupation of the hill to this period, even if the bulk of the materials pertain to the FN III and then to the FN IV phases. Anyhow, from what we currently know, the Messara Plain does not seem to be permanently inhabited in the previous phases of the Neolithic period.

At the same time as the first Phaistian Neolithic settlement, the site of Gortyn-Acropolis was also occupied in the Messara Plain. The pottery from this site shows similarities with Phaistos in some forms, such as small cups of different shapes, cups with everted rims and small feet in the shape of a truncated cone, and in some decorations, such as the zig-zag incisions.²⁵ On the other hand, the characteristic traits of the Phaistian Neolithic are totally absent and the quantity of the pottery fragments is very scant and absolutely not comparable with Phaistos. In looking for other sites sharing similarities with Phaistos, it is surprising that, besides a few elements in common, the Phaistian assemblage differs significantly from that of other Cretan sites in regards to the pottery wares, the decorations and the pottery shapes, in many cases owing to the different extent of the sites too.

Similarities have been sought primarily with Knossos, the only site that has a long-lasting occupation and has provided findings from the entire Neolithic period. In fact, the prospect of finding a connection between the two major Neolithic sites of the island should be very important, especially now that the FN has been recognised and defined also at Knossos. Nevertheless, at present the relationship between the two sites is not easily comprehensible because they share few features. The comparison between Phaistos and Knossos with regards to the Fine Burnished ware of the first

occupational phase refers mostly to some general types of decorations (*e.g.* triangular jabs, incised or punched ladder, incised or jabbed decoration), and to some sporadic forms,²⁶ elements that by themselves are not enough to establish potential relations. The two sites had local pottery production and at the moment no imports are recognisable at Phaistos from the north of the island,²⁷ while the few specimens encrusted with red found at Knossos seem to be imported from the Messara, such as the vase from J. Evans's excavations in the Central Court.²⁸

Even if we go back earlier in the Neolithic period looking for evidence for an eventual derivation of the Phaistian Neolithic from Knossos, it appears clear that the Final Neolithic of Phaistos shows different characteristics not only from the other phases of the Knossian FN, but also from the pottery now considered Late Neolithic, which is definitely one of the best represented phases at Knossos.

In fact, besides very few traits in common, at Phaistos we cannot find significant comparisons or references to the shapes and the decorations considered diagnostic in the LN and FN phases at Knossos (for example the wide variety of carinated bowls, the low-collared globular jar, the bridge-spout, or the rippled decoration and especially the whole range of the incised or impressed motifs, precisely and regularly applied on the vases),²⁹ so it is difficult at the moment to establish what relationship existed between the two sites.

The characteristic traits of both the first and the second period of the Phaistian FN, as already said, are not easily comparable with other sites on the island of Crete and this is the reason why Phaistos has been considered as isolated for a long time within the Cretan context.³⁰

In the first phase one of the peculiar elements of the Phaistian assemblage is without a doubt the crusted decoration with white or red ochre that does not find any comparisons in Crete. This type of pottery adornment, on the contrary, is very widespread at the

end of the Neolithic period at several Aegean and Anatolian sites. Vases encrusted after firing with reddish or white paint are a characteristic trait of the Attica-Kephala culture and are known from Kephala (Kea),³¹ Attica,³² Peloponnese,³³ Rachmani (Thessaly),³⁴ Naxos,³⁵ Saliagos,³⁶ Emporio (Chios),³⁷ Tigani (Samos),³⁸ etc.

Even if it is not feasible to create links between Phaistos and these sites using a single element of decoration, this kind of pottery finish could still connect Phaistos to a wider Aegean context.

Conclusions

In conclusion, at the moment the distinctiveness of the Phaistian Neolithic pottery compared to the other Cretan sites advises us to be cautious in discussing the possible origins of Phaistos from the population from other sites on the island.

Surely, more investigations need to clarify the population of the Messara Plain during the Neolithic and the relationship between the various Cretan sites. It might be interesting to reconsider the idea of a peopling from the outside³⁹ only during the latest phases of the Neolithic that could explain the presence of these new features in the FN assemblages.

As already pointed out by other scholars, these new groups could have reached Crete in the latest phase of the Neolithic from the East Aegean or West Anatolia, as some characteristics of the assemblages indicate (black burnishing, red and white encrustation, some forms, such as the bowl with horned handles, and so on).⁴⁰ In any case, proof of certain movements in the Aegean during the Late and Final Neolithic comes from the occupation of many Aegean islands at this time and the affinities in their respective assemblages.⁴¹

Even if we are far from definitely solving the problems regarding the Cretan population and the exponential increase of the Late and Final Neolithic sites, at the moment this scenario

seems an interesting starting point to reassess the distinctiveness and peculiarity of the Neolithic of Phaistos.

Notes

- 1 I would like to express my sincere gratitude to Prof. V. La Rosa who encouraged me to undertake the study of the Neolithic of Phaistos and who has supervised my work these years. My warmest thanks go as well to the Italian Archaeological School at Athens and to its former director E. Greco. I would like to thank the editors and the peer-reviewer for the useful comments and the text editing.
- 2 The excavations at Phaistos began in 1900 thanks to an Italian Mission guided by the scholars F. Halbherr and L. Pernier. From 1909 onwards, the excavations have continued under the aegis of the Italian Archeological School at Athens. For a brief summary of the history of the excavations of the Neolithic levels *cf.* Di Tonto 2009, 58–62.
- 3 A revision of the Neolithic stratigraphies of the past excavations has recently been carried out by the author, *cf.* Di Tonto 2009.
- 4 Vagnetti 1973a, 48–9.
- 5 La Rosa 2004; see also Di Tonto 2011c.
- 6 Di Tonto 2011a, 141–5; Di Tonto 2011c, 61–6.
- 7 Todaro and Di Tonto 2008.
- 8 Vagnetti 1973a, 73–4.
- 9 Vagnetti 1973a, 77–9; figs 103.1–4; 104.1, 2, 6, 10, 13, 15; 105.1–5.
- 10 Vagnetti 1973a, 75, figs 99.1–5, 7; 100.1, 3–4, 6–13, 17–9; 101.1, 3–5, 7–9.
- 11 Vagnetti and Belli 1978, 129.
- 12 Vagnetti 1973a, 79–80; figs 73; 111.4, 6, 8.
- 13 Vagnetti 1973a, 80–2, figs 116, 118.
- 14 Di Tonto 2009, figs 2–3.
- 15 Di Tonto 2009, figs 4–5.
- 16 Di Tonto 2011a, 146–7.
- 17 Di Tonto 2009, figs 41a–b.
- 18 The only specimen similar to the Phaistian bowls, even if smaller in dimensions and carelessly executed, comes from the Melidhoni cave. This bowl, not yet published, is stored in showcase 2 at the

Rethymnon Archaeological Museum (Crete). A photo taken from the side of the handle and not of the spout is in Godart and Tzedakis 1992, pl. CV.

19 Di Tonto 2009, 73, figs 26a–b.

20 Vagnetti 1973a, figs 70.9, 12–5, 18; 97.

21 Domestic areas were recognised in several trenches, such as under Rooms XIX and 25, Corridor 7, West Court, and Central Court. For the functional interpretation of these areas *cf.* Di Tonto 2009.

22 Levi 1958, 340–1; Todaro and Di Tonto 2008, 189–90.

23 Vagnetti 1973b, 1–4. It is the author's intention to undertake a re-examination of the pottery from Mitropolis in the near future.

24 Tomkins 2007b.

25 Vagnetti 1973b, fig. 2; tab. II. 2; III.1–2.

26 Tomkins 2007b, 39–41.

27 A key project entitled “Technological and Social change in Phaistos, Crete, from the Final Neolithic through EMIIA” has been carried out by R. Montesana at the University of Sheffield (UK) within the European project NARNIA. This work aims at understanding the socio-economical changes at Phaistos through the study of the technological changes in pottery production, thanks to the application of new approaches and technologies to the study of the pottery materials. Moreover, the analysis of the Phaistian Neolithic pottery will be very useful to recognise imports and to clarify possible contacts with other areas inside and/or outside Crete.

28 Evans 1971, 113–4; Tomkins 2007b, fig. I.14. 27.

29 Tomkins 2007b, 30–8.

30 Since the first excavations at Phaistos, it was clear to the excavators that at the site in the Mesara plain the oldest phases were absent, leading L. Pernier to suppose that at least a part the Phaistian Neolithic overlapped with the EM at Knossos (Pernier 1935, 107–8). This assumption of a slow evolution in the Mesara plain, compared to the north of the island, led to a theory of the long isolation of Phaistos, till the recovery in J. Evans' West Court excavation (Evans 1971, 113–4) of some fragments very similar to the pottery from Phaistos that create a link between the two sites, and then especially thanks to the reappraisal of the Neolithic

materials carried out by P. Tomkins that has recognised a long and articulated FN phase also at the site of Knossos (Tomkins 2007b).

31 Coleman 1977, 10–1.

32 Vases decorated with incisions filled with white were present in the MN at Nea Makri (Pantelidou-Gofa 1995, 62), and fragments in Red Burnished Ware with patterns in fugitive matt white are known from the Athenian Agora (Immerwahr 1971, 7, 11).

33 Douzougli 1996, 128.

34 Gallis 1996b, 122.

35 Zachos 1999, 155–6.

36 Evans and Renfrew 1968, 36, 42.

37 Hood 1981, 225–7.

38 Felsch 1988, 69.

39 Renfrew 1964, 131; Warren 1969, 156; Warren 1974, 41.

40 Sampson 1984, 239–42; Warren 1974, 42–3.

41 Broodbank 1999; Cherry 1990, 164–71; Davis 2001, 22–3.

The Final Neolithic–Early Minoan I transition in South-Central Crete: New data from Phaistos

*Simona Todaro*¹

Introduction

The Neolithic–Early Bronze Age (EBA) transition in Crete (Fig. 45.1) poses problems of chronology and problems of interpretation concerning the causes or circumstances that might have determined the emergence of the cultural features that define the Early Bronze Age in contrast to the Neolithic period.²

While the first issue has benefitted from the recent discovery of stratified Final Neolithic (FN)–Early Minoan (EM) I contexts at sites like Knossos, Kephala Petras and Phaistos,³ the second issue is the focus of an ongoing debate. Some scholars explain the changes that occurred at the onset of the EBA as the outcome of migrations,⁴ but disagree about the origin of the newcomers (which is variously placed in the Dodecanese and South-West Anatolia, the Troad and North-East Aegean, Cilicia or the Syro-Palestine coast), and also about the chronology of their arrival (which is dated to the end of the Late Neolithic (LN) or to the end of the FN). Other scholars, instead, see these changes as the outcome of a gradual process that took place with some external influences but without any significant migration,⁵ but are not able

to explain the modalities through which the foreign ideas interacted with local concepts.

Particular attention has been paid to a class of pottery made of a pale-firing clay and decorated with linear motifs in red paint, because it seemed to provide the most dramatic evidence for the arrival of new groups.⁶ In fact, several scholars proposed that this pottery originated in the Chalcolithic of Israel and Palestine.⁷ These cultures do not, however, have any other parallels in Crete so, as Betancourt has said, “we are left with the supposition that the technology of this revolutionary type of Minoan pottery ... was so subtly changed when it arrived in Crete that we can no longer identify its exact origin.”⁸

This paper focuses on South-Central Crete (which was first properly settled between FN and EM I), where the beginning of the EBA is signalled by the introduction of a class of red-painted pottery known as Ayios Onouphrios ware, and of a type of circular vaulted tomb known as the Messara tholos. More specifically it focuses on Phaistos, which is the only site in which the transition from the FN to the EM I period is documented, and it aims to link the patterns of continuity and change noted at the site to the settlement history of the region, so as to assess whether and to what extent the formation of a distinct EM I cultural package involved the contribution of different human groups.

Phaistos from the FN through the EM I: The local dimension

Phaistos is located in the westernmost part of the Messara, the largest plain of the island of Crete. From the EBA through the Hellenistic period it was articulated over three hills extending in an east–west direction over the left bank of the Geropotamos river.

The earliest traces of human activity were detected on the easternmost and lowest of the three hills, beneath the remains of two Minoan palaces that were built, one above the other, in the Middle and Late Bronze Age.⁹ This hill had the advantage of

having the largest natural plateau, which was indeed occupied first, but it was not as protected as the middle one and this suggests that defence was probably not a major concern for the groups who decided to establish a settlement on the hill.¹⁰

That this might have been the case has been further confirmed by recent geological studies conducted in the Phaistos area. The results of these studies showed that the westernmost part of the Messara was underwater between 4000 and 3500 BC, and that Phaistos was a coastal site because the Geropotamos river, which was much more powerful then, emptied into the sea near the hill of Ayios Onouphrios (Fig. 45.2).¹¹

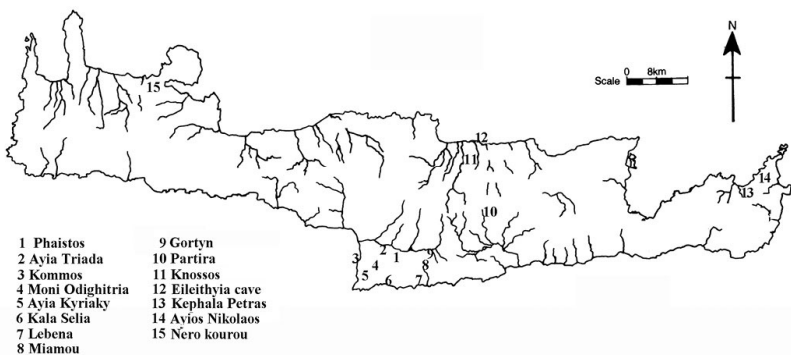


Figure 45.1. Map of Crete with sites mentioned in the text.

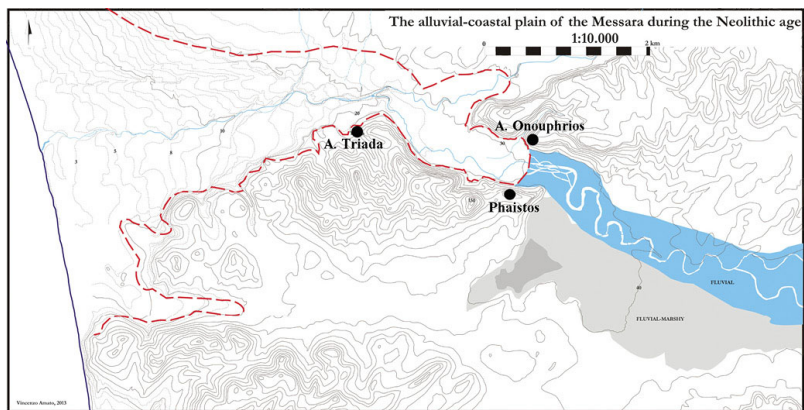


Figure 45.2. The alluvial plain of the Mesara during the Neolithic period, with the hatched line denoting the Neolithic coastline (courtesy

of V. Amato).

The focus of this article, which aims to address the transition from FN to EBA, will be on the first four phases of occupation that were found stratified in deposits up to 3 m deep in several parts of the site. Each phase will be briefly characterised not only in terms of pottery and building technique, but also in terms of spatial organisation of the settlement so as to assess the degree of continuity and change from one phase to the other.

Phaistos I, attributed to FN III, has two construction phases. The first, identified along the western side of the Central Court of the Minoan Palace, is represented by many negative features, which the author has attributed in part to pit-dwellings and in part to open-air installations.¹² The second, which is spread across the hilltop, is instead represented by rectangular built-dwellings that were provided with enclosed yards and circular annexes, and were organised around two open areas that represented the ceremonial foci of the community, and were used for very complex rituals that entailed the use of triton shells, red ochre and the manipulation of human remains (Fig. 45.3).¹³

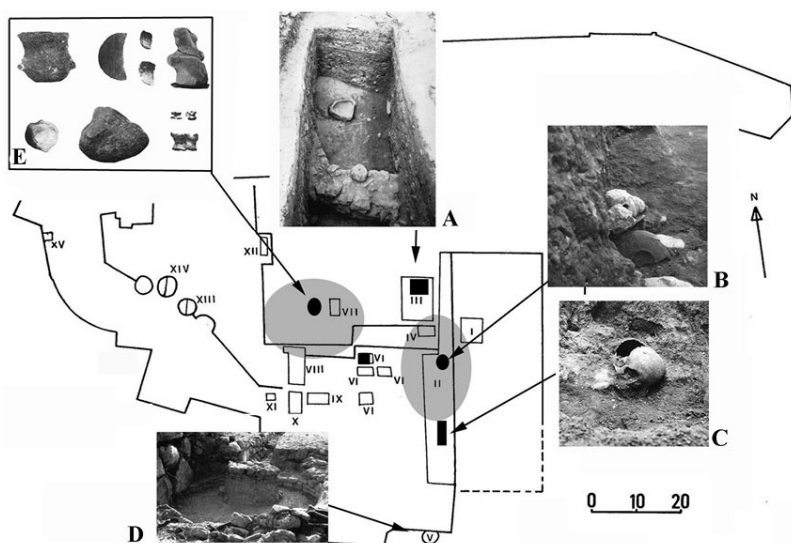


Figure 45.3. The Phaistos hilltop during the second construction phase of the first phase of occupation. A. Built rectangular dwelling with circular annex; B. Ritual assemblage composed of a triton shell, a sieving vessel and a jar, all decorated with red encrusted ochre; C. Skull with a stone placed in the mouth in replacement of the missing mandible; D. Circular annex known as capanna Neolitica; E. Ritual assemblage composed of miniature vases, sea-shells, a female figurine, a piece of magnetic iron and several astragaloi.

The pottery is very homogeneous and comprises several sets of tableware with matching drinking, pouring and serving vessels, in black or brown burnished wares.

The most distinctive class of pottery of this phase is a dark burnished ware decorated with simple but distinctive linear motifs encrusted in red ochre (Fig. 45.4). The formal repertoire is also peculiar and includes, among others, bowls with a V-shaped spout, collared jars, and footed bowls/fruit-stands, all shapes that so far have only been found at Phaistos, which in fact appears to be rather isolated in its region. The only exception seems to be a few fragments of red encrusted ware that have been reported from Kommos,¹⁴ a coastal site that could indirectly confirm that the settlers arrived directly from the sea, and from Gortyn-Acropolis.¹⁵ The few sherds of red encrusted ware found at Knossos, in a sounding conducted beneath the west court of the Minoan palace, have in fact been explained as probable imports from the Messara.¹⁶

Phaistos I was concluded by a sudden event that interrupted the activities conducted on the hill, determining the formation of rich deposits sealed by a stratum of stones probably belonging to collapsed buildings. It has proved impossible, however, to assess how long the abandonment lasted and whether it was caused by natural causes or human action.

Phaistos II, dated to FN IV, was inaugurated by a building program that led to the levelling of the structures of the previous phase, and changed the functional destination of the hilltop from

residential to ceremonial, with consequent relocation of the houses to the slopes of the hill.¹⁷ Indeed, the hilltop preserved only large open-air cooking installations that: 1) were periodically used for large-scale episodes of conspicuous consumption of food and drink that also involved groups of non-residents; 2) were put out of use with the *in situ* discard of the associated debris; and 3) were eventually replaced by new hearths that were set in the same area but at a progressively higher level.¹⁸

Aside from the changes observed in the internal organization of the site, which has also provided a small piece of copper ore and one copper point,¹⁹ other changes are noted in the material culture, and namely in the pottery (Fig. 45.5). The pottery includes a few cheese-pots, serving vessels in black burnished ware, pouring and drinking vessels in a red slipped ware, often mottled and rarely with white encrusted decoration, and high-necked jars that mixed different surface treatments on different body parts (granulation with large grits and red ochre on the body, and pattern burnished or red slip on the neck).

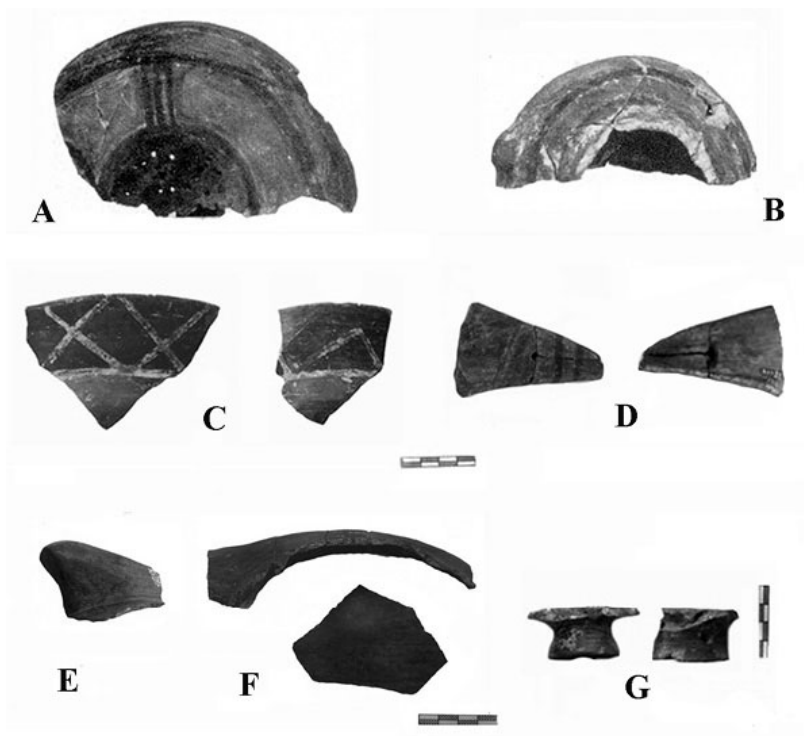


Figure 45.4. Some of the most diagnostic pottery of Phaistos I. A. Sieving vase in red encrusted ware; B. Collared jar in red encrusted ware; C. Bowls with off-set rim in red encrusted ware; D. Spout or beak of a v-spouted bowl, in red encrusted ware; E. spout of a v-spouted bowl in brown burnished ware, all encrusted with ochre on the inside; F. Fragmentary v-spouted bowl in brown burnished ware; G. Ring-bases in brown burnished ware.

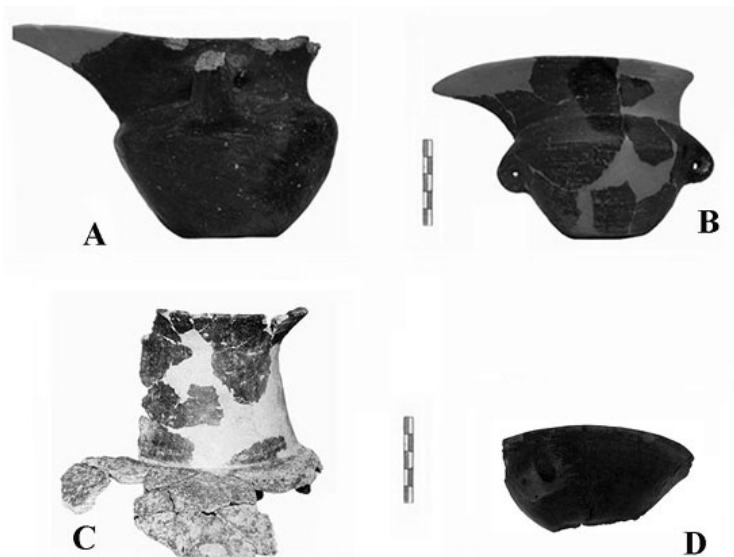


Figure 45.5. Some of the most diagnostic pottery of Phaistos II. A. V-spouted jug with horned vertical handle in red mottled ware; B. V-spouted jug with two small vertical handles in red mottled ware; C. High-necked jar in granulated ware (scribed burnishing on the neck and granulation on the body); D. bowl in black burnished ware.

Vases in mottled ware, which can be considered to be the hallmark of the phase as they are not attested in the closed contexts of the previous phase, from a typological point of view show a strong continuity with the previous phase, and indeed comprises bowls with an off-set rim, often with a long V-spout, jugs and high necked jars. From a technological point of view, they represent something completely new as they are made of a pale-firing highly calcareous clay that was sand-tempered.²⁰

This discovery is extremely important because previous studies based on FN and EM I pottery found in other locations on Crete had led many scholars to believe that the use of a calcareous pale-firing clay on the island began in a rather abrupt and sudden way in EM I, providing “dramatic evidence of new concepts emerging, and surely new groups of people arriving”.²¹

The new data from Phaistos, instead, shows that the new technological tradition started at the site within the FN period and co-existed with the previous one based on a non-calcareous or low-calcareous and non-tempered clay, used for black burnished ware and for coarse ware.

Unfortunately, it is impossible to say whether the new tradition developed locally due to some external influences, or hints at the presence in the area of a different group of potters. As a matter of fact, from this phase onward the sets of tableware started to be composed of non-matching sets of drinking and serving vessels, suggesting that the shape/ware specialisation that characterises the production of the EM I (mirroring the presence of several production groups),²² actually began in FN IV.

Phaistos III, dated to a very early stage of the EBA, develops from the previous phase without major discontinuities. The beginning of the phase, known from a few contexts that were unfortunately disturbed by later constructions, is characterised by a pottery that documents the co-existence of features that could be regarded as Neolithic and others that belong to the EBA tradition, often associated in the same vase. Thus, it seems to indicate a slow transition from a Neolithic way of producing pottery to one that is more in line with the Early Bronze Age.

Paradigmatic of the transitional character of the beginning of the phase is a jug that is red slipped and mottled on the inside and plain on the outside so as to be decorated with red paint, as well as a low-carinated bowl that is produced in a fine fabric in a depurated calcareous clay and painted with red paint, but is provided with a horned handle of Neolithic type (Fig. 45.6a–b).

The final stage of this phase, which ended with a violent destruction, is easily distinguishable from the previous one, both in terms of pottery and architecture. The buildings, multi-roomed and probably on two storeys, are nicely finished with a red plaster coat and represent an improvement in terms of building technique because each wall was built with small un-worked fieldstones tied

together with clayey mortar so as to create two external faces with a rubble packing (Fig. 45.6c–d). The pottery, although not particularly abundant, is consistent and highly homogeneous and is almost all made of pale-firing calcareous clay. The dark burnished ware is virtually absent, and aside from a very few fragments of pedestalled bowls in dark scribble-burnished ware (Fig. 45.6e–f), most burnished pottery displays an orange surface and fabric or a creamy surface and very light brown fabric (Fig. 45.6g). There is also a class of semi-fine light brown-pinkish ware that can be decorated with a red paint that vanishes very easily and is used for jars, jugs and pedestalled bowls decorated with thin horizontal lines (Fig. 45.6g–i).

Overall, the features of this phase suggest that it developed smoothly out of the previous one and represented a period of experimentation, with some external influences but with a notable degree of continuity.

Phaistos IV marks a major discontinuity in the settlement history of the site inasmuch as many areas of the hill, following the destruction that ended Phaistos III, were abandoned and re-occupied only in later phases. The locus of domestic and ceremonial activity returned to the hilltop, where many structures with red ochre floors and a fixed hearth were built around two large open areas that, as in Phaistos I, were used for communal rituals that involved the conspicuous consumption of meat and drink that was stored and served in painted jars and jugs, and was drunk from dark-grey pattern burnished chalices (Fig. 45.7).

Aside from the internal organisation of the site, and aside from some architectural details such as the red ochre floors or the fixed hearths made of small blocks disposed in a circular arrangement, the links with Phaistos I are underlined by the pottery, both burnished and painted wares (Fig. 45.8a–f). The burnished wares, which are preferably dark surfaced as in Phaistos I, are used for open shapes such as chalices and ring footed bowls, or for closed shapes such as lidded pyxides, and include grey and black

burnished wares that are decorated with scribble or pattern burnishing. Surprisingly, the chalices and ring-footed bowls with a pattern-burnished decoration often have a motif of St. Andrew crosses beneath the rim that recalls the most common motif attested on the bowls in red encrusted ware of Phaistos I (Fig. 45.8f, 1).

The painted ware includes a red-on-buff ware that is also known as Ayios Onouphrios ware, and a white-on red ware that is generally known as Lebena style.²³ The red-on-buff ware is used for closed shapes such as amphoras, jugs and juglets (Fig. 45.8a–c) that, from a typological point of view can be traced back to Phaistos I. The relationship is particularly evident in the case of the wide-mouthed juglet that previous studies have tried to link to the Chalcolithic cultures of Palestine and Israel, finding only generic parallels. A comparison with the V-spouted bowls in red encrusted ware typical of Phaistos I, instead, reveals astonishing similarities in both the profile and the articulation of the decorative motifs on the external and internal surfaces.

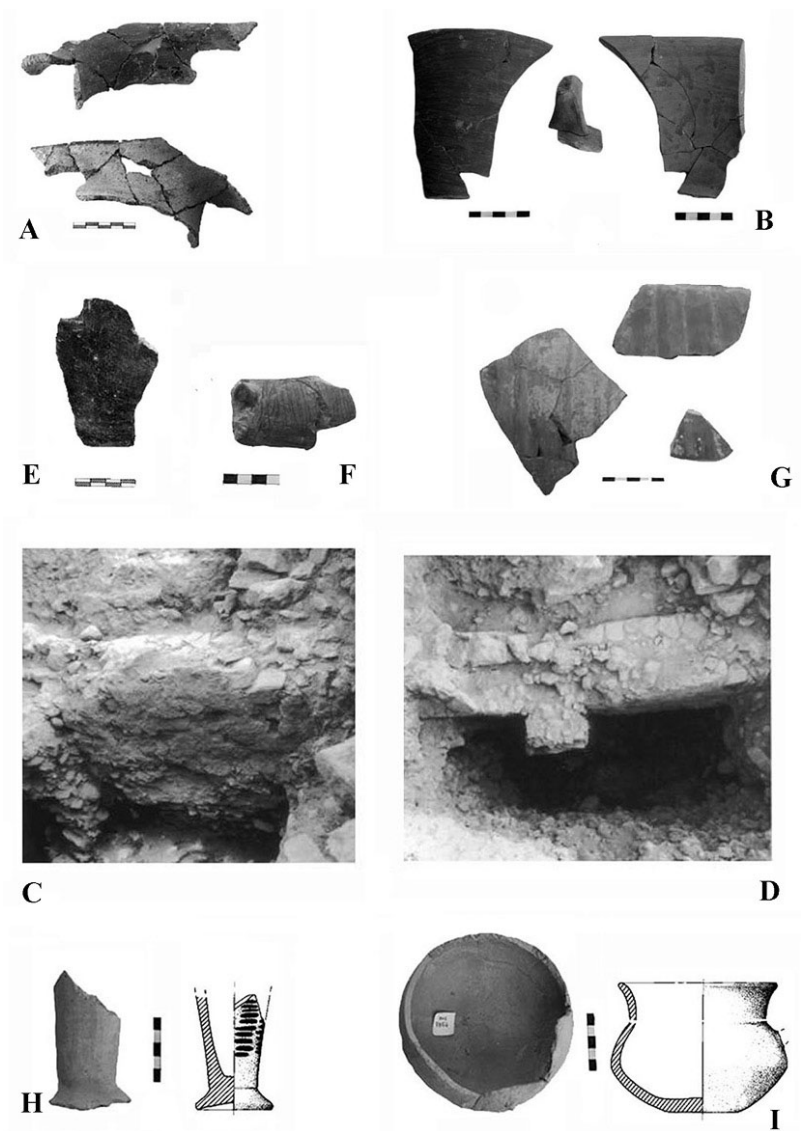


Figure 45.6. Some of the most diagnostic pottery of Phaistos III. A–B. Vases with transitional FN-EM I features; C–D. two views of a long E–W red plastered wall, built with small un-worked fieldstones tied together with clayey mortar so as to create two external faces with a rubble packing; E. fragmentary base of a bowl with a fenestrated pedestal; F. Rim of a bowl in dark grey pattern burnished ware; G. Jar

in orange burnished ware with multiple vertical ribs; H. Pedestal in a light brown-pinkish ware painted in red; I. Bi-conical jar in a light brown pinkish fabric.

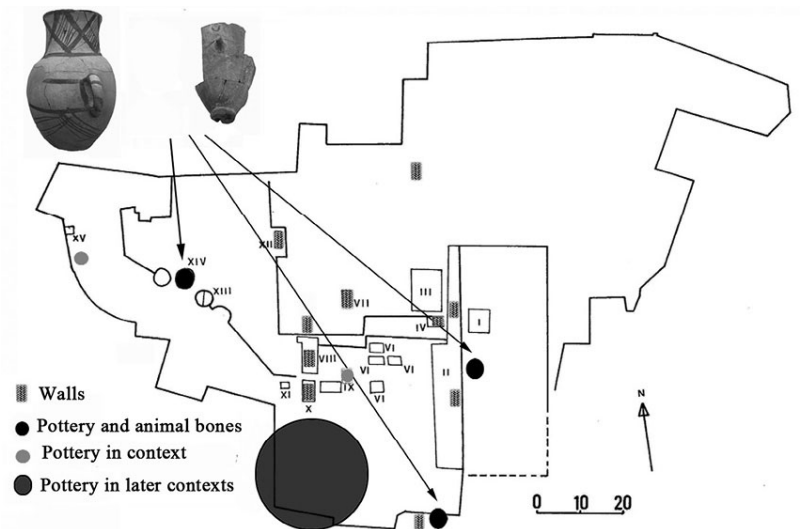


Figure 45.7. The Phaistos hilltop during the IVth phase of occupation of the site.

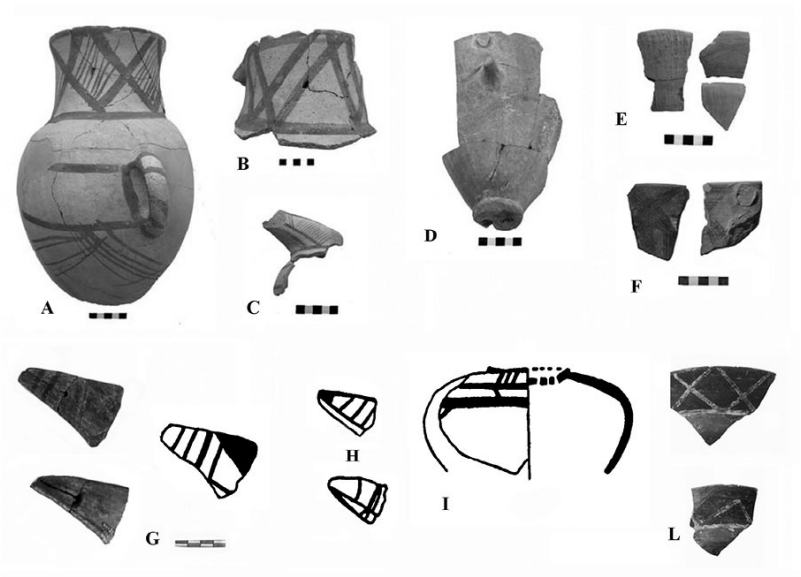


Figure 45.8. Some of the most diagnostic pottery of Phaistos IV. A. Two-handled jar in dark on light ware; B. Jug in dark on light ware; C. Wide mouthed juglet in dark on light ware; D. Fragmentary chalice in dark-grey pattern burnished ware; E. Sherds of chalices with overall burnished decoration; F. Sherds of chalice with a motif of St. Andrew in pattern burnished decoration; G–L. Vases in black burnished ware with red encrusted decoration from Phaistos I that inspired several vases and decorative motifs of the red painted ware of Phaistos IV.

The wide-mouthed juglet, indeed, differently from the banded-neck juglet that is common in other EM I sites,²⁴ is treated by the potter as an open shape and has the internal part of the beak and of the neck (which are easily visible due to the wide opening) all painted in red exactly as the earlier specimens in red encrusted ochre (Fig. 45.8g–h).

The white-on-red ware, which can be traced back to the red burnished ware of Phaistos II, is usually made in a very pale brown fabric that has been tempered with minuscule grit, and is mainly used for lidded pyxides.

Among the coarse ware, it is worth noting that storage vessels in wiped and washed ware that continue a tradition attested at the site since phase II, are accompanied by the first proper pithoi, with very thick walls (up to 4 cm in thickness). These pithoi have a light-brown slipped surface that can be decorated with raised cords and a very distinctive pink fabric that is lightly tempered with chaff or other perishable material. Their shape is unknown because once broken their walls and rims were nicely cut so as to form rectangular slabs that were then used in circularly arranged hearths.²⁵

The material culture of Phaistos IV, therefore, reveals a mixture of continuities and discontinuities with the preceding EM IA phase (Ph III), but also the revival of some of the most distinctive elements of the first phase of occupation that were not represented in the intermediate phases (Phaistos II–III). Elements such as the ring-footed bowls in dark burnished ware or the jugs painted in

dark on light appear to be new if compared with the ceramic horizon of Phaistos III or Phaistos II, but were in fact widely attested in Phaistos I (Fig. 45.4g). The orange or creamy burnished wares that were introduced at the site during phase III, instead, seemingly disappeared with the destruction that ended that phase.

This brief outline of the first phases of occupation of Phaistos has highlighted that the transition from the FN to the EM I at this site was marked by two traumatic events, which occurred at the end of Phaistos I and Phaistos III, and were apparently followed by periods of abandonment that might have lasted a few decades or several generations. Each of these events brought about important changes in the internal organisation of the settlement and/or in the material culture of the site and thus potentially might have been prompted by human factors, more than by natural factors. This issue can however only be tackled by widening our perspective so as to include the entire region, which began to be more densely populated at the beginning of the EBA.

The plain of the Messara between the FN and the EBA: The regional dimension

The Messara, irrigated by the Geropotamos River and its numerous feeders, owes its name to the fact that it is enclosed between two mountainous massifs: the Psiloritis to the north and the Asterousia to the south (Fig. 45.1).

The area, under thorough exploration for more than 120 years by the Greek archaeological service and by numerous foreign researchers, contains hundreds of FN to Late Minoan IIIC sites, and was most probably first settled at the end of the Neolithic period.²⁶

Unfortunately, only nine of the sites that have been attributed to the time-span between FN and EM I (Table 45.1) have been published to such an extent that they can be assigned to one of the phases that have been recently detected at Phaistos. It must therefore be acknowledged that future discoveries might

significantly change the picture drawn in this paper.

The earliest sites, dating to FN I in Knossian terms, were located in the centre of the plain, at Gortyn-Mitropolis, along the Mitropolitanos River,²⁷ and at Miamou, in the foothills of the Asterousia Range.²⁸

These two sites, which are complementary in many respects as they are an open-air settlement and a cave, were abandoned in FN III and IV and were re-occupied in EM I, as attested by the rim projection belonging to the Partira group found at Mitropolis,²⁹ and by several vases found in the Miamou Cave in association with human bones that witness a change in use of the cave from residential/ritual to funerary.

The FN III phase seems to be characterised by a shift from the lowlands to the highlands that some scholars have interpreted as a defensive response that was prompted by the arrival of newcomers.³⁰ The available data are however too scarce to be conclusive as they are only based on Phaistos and the Acropolis at Gortyn that, although both are hill-sites, do not share the same cultural horizon and show a different strategic potential.

In fact, while Phaistos was founded on the lowest of three hills overlooking the sea, in an area that was seemingly deserted or scarcely inhabited, the site on the Acropolis at Gortyn was apparently established after the abandonment of the site near Mitropolis, and could have represented a defensive measure driven either by human or natural factors.³¹ The pottery from these two sites has however been only preliminarily studied and published and so any conclusion risks being reached from an *argumentum ex silentio*.³²

The last phase of the Neolithic period, FN IV, is again mainly known through the rich deposits excavated at Phaistos (Phaistos II). The site established on the Acropolis at Gortyn continued to be occupied, as revealed by high-necked jars in granulated ware, which are typical of Phaistos II, and by the presence of cheese-pots, which are only sporadically found in Phaistos II contexts, but

characterise the FN IV phase in a few sites scattered on the northeast and north-west coasts of the island.³³

The association of cheese-pots and granulated ware is extremely interesting as both classes of pottery represent new technological traditions that, in the case of the cheese-pots, have been traced back to the Dodecanese and attributed to newcomers who might have reached the two northern ends of the island in FN IV, going as far south as the island of Gavdos,³⁴ only touching the westernmost part of the Messara.

Table 45.1. FN-EM I sites from the Mesara that can be re-dated on the basis of the new chronological re-assessment.

<i>Sites</i>	<i>Diagnostic pottery</i>	<i>Function</i>	<i>Old chronology</i>	<i>New chronology</i>	<i>Bibliography</i>
Gortina-Mitropolis	Incised pottery	Open air settlement	MN	FN II	Vagnetti 1973b; Tomkins 2007; Todaro 2013
	Rim projection Partira bowl		FN	EM IA	
Miamou	Incised pottery	Cave dwelling	LT	LT? FN II	Taramelli 1897
	Tankard and jugs	burials			
			EM I	EM I	
Gortina-Acropoli	Granulated ware	Open-air settlement	FN I-II	FN III ? FN IV	Vagnetti 1973b; Tomkins 2007; Todaro 2013
Kamilari		Open-air settlement	FN	FN IV	Watrous 2004
Kala Selia	Bowls on fenestrated pedestal	Seasonal farmstead	FN	EM IA	Vasilakis 1987
Lebena-Yerokambos	Partira group	Tomb	FN-EM IA	EM IA	Alexiou-Warren 2004
	Ayios Onoufrios and Lebena styles		EM IA	EM IB	
Moni Odighitria	Partira group	Tomb		EM IA	Vasilakis & Branigan 2010
	Ayios Onoufrios and Lebena styles		EM I	EM IB	
Ayia Kyriaki	Partira group	Pre-tomb level/ habitation?	FN	EM IA	Blackman and Branigan 1982
	Pyrgos, A. Onoufrios and Lebena styles	Tomb			
			EM I	EM IB	
Ayia Triada	Partira group and Pyrgos, A. Onoufrios, Lebena styles	Foundation ceremony of the site	EM I	EM IA/EM IB	Todaro 2001; 2003; 2011a

The FN sites identified during the survey conducted in the area around Phaistos,³⁵ judging from the few published ceramics, date to FN IV and were strictly related with Phaistos II. The amount of meat consumed during the communal ceremonies performed on the Phaistos hilltop³⁶ has indeed suggested the participation of groups of non-residents. The aggregative nature of these

ceremonies has, on the other hand, led to the hypothesis that the sharing of food might have been intended to create a sense of belonging between the participants that included local households (who lived on the slopes of the hill) and external households who lived in farmsteads spread across the plain but were descended, or found it advantageous to claim to be so, from the group that inhabited the Phaistos Hill.³⁷

The EM I period has usually been associated with a notable demographic expansion in the Messara, due to a supposed increase in the number of sites identified.³⁸ It must however be acknowledged that the EM I as a ceramic phase lasted for *ca.* 600 years, and thus the sites identified through the survey might not have been occupied at the same time. In fact, recent studies have allowed two phases to be discerned in EM I at Lebena and Phaistos.³⁹ The available data, however, does not allow the re-assignment of all the sites identified in the plain to one or other of the two sub-phases, making it impossible to appreciate whether the onset of EM I coincided with demographic growth.

For this reason, it seems safer to avoid drawing conclusions from quantitative data that might also have been biased by the greater visibility of the architectural structures typical of the EM I period (tholos tombs and multi-room buildings), and to focus instead on a qualitative evaluation of those sites whose dating is certain, so as to be able to identify the actors and/or the processes involved in the transition to the EBA.

The earliest phase of the period, EM IA, is so far only attested at four sites: Phaistos, two tholos tombs (located respectively at Lebena and Moni Odighitria), and a farmstead at Kala Selia in the Asterousia Mountains, on a hill that overlooks the bay of Kali Limenes.⁴⁰ The latter site was, in fact, dated by the excavator to the FN period, mainly due to the absence of painted pottery. However, the small assemblage forms a highly homogeneous group consisting of bowls, fruit-stands with fenestrated pedestal and necked jars, all in a dark burnished coarse ware that can be

compared with Phaistos III and mainly with the pottery found in the second occupation level identified at Kephala Petras, where painted pottery was also virtually absent, rather than to FN III or IV.

The chronology of the two tholoi has also been recently re-assigned to the EM IA period, and has allowed scholars to ascertain that this particular type of collective tomb appeared first on the southern coast of Crete and subsequently moved northward, passing through the valley of the Ayiofarango and reaching the Western Messara.⁴¹

From a conceptual point of view, the funerary ritual performed in the tholoi is not dissimilar to the one performed at Phaistos I and in FN caves such as the one at Koumarospilio, as it involved: 1) the secondary manipulation of the skeletal remains buried in the circular funerary chamber; 2) the curation of selected bones (mainly skulls and long bones) with relocation to the annexes or to special places located outside of the funerary sphere (in settlements or caves); 3) the definitive storage of selected bones (mainly skulls) in an ossuary.⁴²

From a typological point of view, instead, the type, which consists of a circular and probably vaulted funerary chamber and many rectangular annexes used as ossuaries or as storerooms, does not have any obvious Neolithic antecedent in Crete and many scholars have in fact attempted to locate its origin outside, failing to provide any convincing prototype.⁴³

The material culture associated with these earlier tholoi has not provided better insights to explain the origin of the funerary type. The earliest stage of use of Lebena-Yerokambos, for example, included: 1) bowls in black burnished ware with horizontal grooves or with small hollows impressed beneath the rim;⁴⁴ 2) bowls with triangular rim projections and lidded suspension pots in dark grey pattern burnished ware;⁴⁵ 3) one painted jug;⁴⁶ and 4) a unique example of a lidded pyxis in red monochrome ware, with vertical horn-like handle on lid and shoulder.⁴⁷ It is in other

words a pottery group that finds close comparisons at Moni Odighitria, but has little, if anything at all, in common with Phaistos III or with Kala Selia.

More precisely, the vases in black burnished ware can be traced back to Phaistos I, which in fact also provides a good comparison for the mixture of rectangular and circular architecture typical of the tholos tombs; the red burnished ware could be traced back to Phaistos II; the painted pottery, which is actually represented by a single jug that appears atypical in comparison with the jugs of the later phase, does not have precise comparisons; the grey pattern burnished ware finds very close parallels in the so-called sub-Neolithic groups that were found in caves and rock-shelters that were used for ritual or funerary purposes in a phase that seemingly preceded the introduction of the painted pottery.⁴⁸

Most of these deposits comprise only the two shapes attested at Lebena – suspension pot and horned bowl – which are however documented in a few variants that are all nicely decorated with pattern burnished motifs inserted in vertical panels that recall, quite closely, the pattern burnished bowls of the style of Beşik Tepe, attested in several North-Western Anatolian sites.⁴⁹

Nevertheless, with a few exceptions,⁵⁰ most scholars hypothesised that the sub-Neolithic groups, which were attested across the island, represented the local Cretan tradition in a phase in which the island started to open up to several external stimuli. S. Hood, for example, believed that these sub-Neolithic groups and the FN materials from the upper Neolithic level at Phaistos were produced at the beginning of the EBA by the Cretan population in an attempt to imitate the new shapes and styles that, introduced at Knossos by a small group of newcomers, spread across the island in the course of the EM I.⁵¹

Leaving aside the rather striking similarities between Cretan and West-Anatolian specimens, it should be noted that, as a matter of fact, the Partira group is attested only at sites that were either

founded in EM IA (Partira; Ayios Nikolaos, Eileithya; Lebena; Moni Odighitria; Ayia Kyriaki, pre-tomb level; Ayia Triada), or had a FN IV phase related to the cheese-pot horizon (Kephala-Petras; Plativola; Gavdos), which has been considered to have an external origin (Table 45.2). None of the long-established sites such as Knossos have provided cheese-pots or vases of the Partira groups and even a site like Phaistos, which was founded in FN III and provided a few cheesepots, appears to have been impermeable to the Partira group. In this sense, the Partira group seems to represent a new cultural horizon, rather than the expression of the Cretan Neolithic, a new element that in the area to the north of the Psiloritis Mountains has usually been found in caves and rock-shelters, while in the area to the south it has been found in tholoi or in ritual contexts of non-funerary nature, in association with painted pottery, hinting that the time span in which the group was produced and used on the island was relatively long and thus partially differentiated.

That this might have been the case is further demonstrated by Ayia Triada, a site located less than 3 km to the west of Phaistos. The largest EM I deposit from the site, excavated in the area to the south of *Piazzale dei Sacelli* and interpreted by the author as the debris of a feasting ceremony performed on the occasion of the foundation of the site,⁵² comprises all of the ceramic styles that were produced and used in Phaistos IV, and a few suspension pots and at least one bowl with triangular rim projections typical of the Partira-Ayios Nikolaos group (Fig. 45.6b). The pattern burnished ware from the site, on the other hand, documents two traditions: one that fired to a dark grey or black surface that can be traced back to Phaistos I and can be compared with Phaistos IV; and one, by far the most common, which fired to a very light grey and displays many features that can be traced back to the Partira group, such as the small lugs placed on the rim above the handle, or the placing of the decorative motifs in reserved panels, either vertical or horizontal (Fig. 45.9).⁵³

Table 45.2. Partira-Ayios Nikolaos group.

<i>Sites</i>	<i>Composition</i>	<i>Function</i>	<i>Old chronology</i>	<i>New chronology</i>	<i>Bibliography</i>
Partira	Bowls, cups suspension pots	Rock-shelter burial	Sub-Neolithic Final Neolithic	EM IA	Mortzos 1972; Renfrew 1972; Vagnetti & Belli 1978 Hood 1990a-b
Ilithyia Amnisos		Cave, ritual use	Neolithic	EM IA	Marinatos 1929, 1930;
Ayios Nikolaos	Suspension pots	Rock-shelter burial	Sub-Neolithic		Toda 1902-03
Kephala-Petras	Suspension pots and bowls with small lugs on rim	Open-air settlement		EM IA	Papadatos 2008; 2012
Platyvola	Suspension pots and mainly horned bowls	Cave	Sub-Neolithic	EM IA	Tzedakis 1966
Lebena- Yerokambos			Sub-Neolithic Final Neolithic	EM IA	Alexiou 1961 Alexiou- Warren 2004
Ayia Triada	Suspension pots and horned bowl		EM I	EM IA-B	Todaro 2001
Gavdos	Suspension pots and horned bowls (no pattern burnished decoration)		Sub-Neolithic	Final Neolithic	Kopaka & Papadaki 2006

Interestingly, the second tradition is attested at Lebena-Yerokambos in the second stage of use that was attributed to EM IB and provides the best comparisons for the painted vases found at Ayia Triada, indicating (a) that the production and use of the Partira group lasted for a certain span of time and inaugurated a precise tradition of pottery making; (b) that differently from the FN IV, when most of the newly founded sites were related to Phaistos II and a few belonged to the cheese-pots horizon, all the sites founded in EM IA or EM IB were more or less directly connected with the Partira group, rather than with Phaistos that after the EM IA destruction seemed to undergo a period of abandonment and or partial decline.

Concluding remarks: The beginning of the EBA in South-Central Crete between continuity, change and revival of the past

The settlement history of the Messara between the FN and the EM I, if read through the stratigraphic sequence at Phaistos, shows that minor changes in the material culture or internal organisation

of the site mirrored major changes in the wider region that in some circumstances might hint at the presence of new human groups.

The foundation of Phaistos in the FN III, for example, clearly represented a new chapter in the history of the Cretan Neolithic, in terms of pottery and ritual practices, at least as far as they can be reconstructed from Knossos. In fact the earlier sites known in the Messara – Mitropolis and Miamou – suggest that the foundation of Phaistos coincided with a shift of the locus of habitation from the plain to the hills. Only the completion of the study of the pottery from the two sites identified at Gortyn, however, will allow us to ascertain whether the establishment of Phaistos could be attributed to the arrival of newcomers,⁵⁴ who might have reached the hill directly from the sea, and might have been responsible for the change in the settlement strategies recorded in the central part of plain.

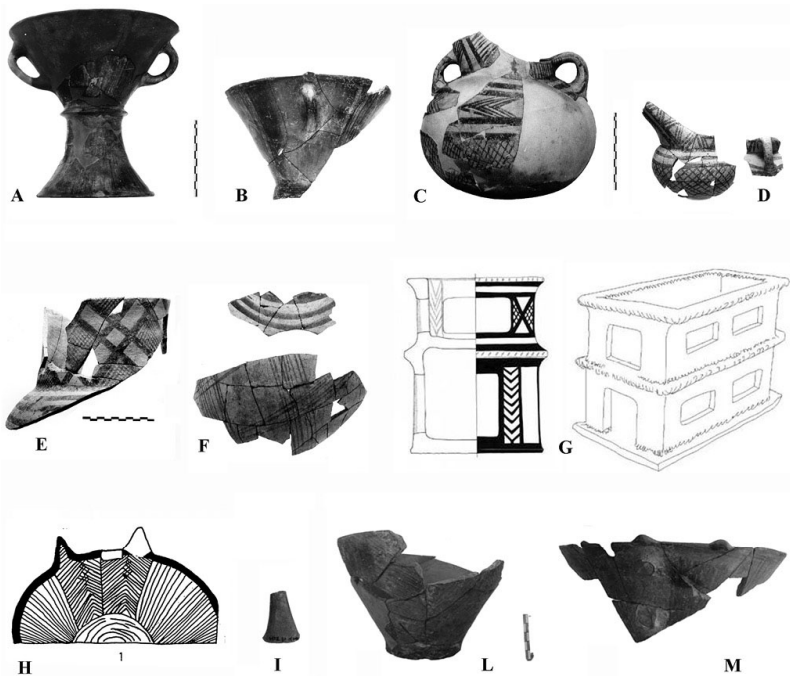


Figure 45.9. Ayia Triada, Piazzale dei Sacelli: pottery from the debris

of the foundation ceremony of the site. A–B. Pedestalled bowl and ring-footed bowl in grey pattern burnished ware with elements derived from the Partira tradition; C–D. Jug and juglet in red painted ware; E–F. Fragmentary jars in red painted ware; G. House model; H. Bowl with triangular rim projection from Partira (after Mortoz 1972); I. Triangular rim projection from a Partira bowl; L. Ring-footed bowl with decorative motifs inserted within vertical panels following the Partira tradition; M. Bowl with small lugs on the rim probably derived from the Partira tradition.

The profound re-organisation of Phaistos in FN IV and the appearance at the site of the first pottery made with a sand-tempered calcareous clay, of the first non-matching sets of drinking and serving vessels, and of the first weak traces of metallurgical activity (a copper point and a copper ore), coincided with the disappearance of the most distinctive feature of Phaistos I, with the arrival of the cheese-pots horizon in the centre of the plain, and with the foundation of new sites in the Western Messara.

The available data are however too scarce to assess whether the destruction/abandonment of Phaistos I was due to the arrival of a new cultural group, who might have occupied the hill, mainly because the dearth of absolute dates does not allow us to evaluate the span of time and the pace by which these changes occurred.

In EM IA, Phaistos was destroyed by a fire that could have been prompted by natural or human factors which caused the death of a person, and new sites were founded in the area to the south of the Asterousia, which are linked to the Partira group that is not attested at Phaistos.

This circumstance could be explained either in chronological terms, *i.e.* by assuming that the appearance of the group in the region coincided with or followed the destruction of Phaistos III; or in cultural terms, *i.e.* as a voluntary choice of the local community. Considering, however, the transitional character of the material culture of Phaistos III, which included several vases

that display Neolithic and EBA features, it seems more plausible to hypothesise that Phaistos III finished contextually or before the appearance of the Partira group in the region. This obviously does not suffice to argue that the two events (destruction of Phaistos and appearance of the Partira group) are correlated, because artefacts should not be used as “defining criteria” of ethnicity.⁵⁵ Ceramic styles do however often represent “emblemic indicia” of ethnic boundaries in production contexts, *i.e.* they are meaningful for the definition of the ethnic or cultural identity of the potters who produced them. In this sense, the absence at Phaistos IV of the pattern burnished ware that descended from the Partira tradition might mirror a choice of the Phaistos community, or rather of the potters of the Phaistos community. That this might have been the case is further suggested by the fact that Phaistos IV is not only impermeable to the new tradition of pottery making, but is also characterised by a revival of some of the most distinctive elements of the first phase of the settlement, from architectural details such as the red ochre finishing of the floors, to pottery shapes and decoration.

A closer evaluation of this phenomenon of “re-use of the past” is currently impossible, as much depends on the identity of the people who re-occupied the top of the hill following the destruction of Phaistos III. They could have been actual descendants of the first settlers, who left the hill at the end of Phaistos I and re-occupied it at some point after the destruction of Phaistos III, re-establishing some of the most defining features of their material culture on the hill. They could also have been the descendants of the Phaistos III inhabitants, who, feeling threatened by the presence of newcomers, used their past as a means of expressing their ancestral links with the land.⁵⁶ In this sense, the reappearance of Phaistos I elements after the destruction of the site and in coincidence with the diffusion of external elements such as those represented by the Partira group, would signal a conscious choice of enhancing elements that were

considered to be local or even “traditional” and thus crucial for the cultural, if not ethnic, definition of the social group.

In both cases, it is impossible to assess whether the people who resumed Phaistos I elements preserved a memory of them, or re-discovered them as a consequence of the building activity on the hilltop.

The foundations of the buildings constructed on the hilltop in Phaistos IV are so deeply inserted into the previous stratification that they reach the strata belonging to the first phase of occupation, bringing to light pottery and also red ochre floors. The builders of Phaistos IV, therefore, could have been totally unrelated to the first settlers of the site. They could, in other words, have decided to imitate part of the material culture that emerged during their activity on the hill in an attempt to construct a social memory, a connection with the local past that might have legitimated their presence on the hill.



Figure 45.10. Ayia Triada, Piazzale dei Sacelli. A. EM I pottery decorated in red painted ware; B. Venetian pottery inspired by the EM I decorative motifs.

The case of the Venetians who occupied Ayia Triada in the

15th century AD is a perfect example of this kind of act, as they established a necropolis of pit tombs that was partly located above the EM I deposit of the *Piazzale dei Sacelli*.⁵⁷ This led to the discovery of several jars and jugs that were decorated in the style of Ayios Onouphrios that the Venetians promptly imitated (Fig. 45.10).

Whatever the reasons and whoever the actors were in this re-activation of the past, from a Phaistian perspective the EM I cultural package appears to be the result of three different cultural traditions that appeared in the region in different moments between FN III and EM I.

The first is represented by the cultural horizon of Phaistos I, which is highly homogeneous and characterised by matching sets of tableware and was probably introduced by newcomers seemingly arrived directly from the sea.

The second is represented by a class of pale-firing pottery that appeared in Phaistos II in association with the first metallurgical activity and in coincidence with the arrival in the region of the cheese-pots horizon that was only scarcely attested at Phaistos, and might signal the presence of a new group in the plain or on the hill, a group who knew how to manipulate successfully calcareous clay and how to work copper.

The third cultural tradition is represented by the Partira group, which appeared in the region at the end of Phaistos III and continued in the EM IB period in the light grey pattern burnished ware, best known from Ayia Triada.

According to this reconstruction, therefore, the painted pottery, which has long been considered to be the most revolutionary innovation of the Cretan EBA, appears to have developed locally from the experience of Phaistos I, II and III, while the light-grey pattern burnished ware represented by the Partira-Ayios Nikolaos group seems to belong to a new cultural tradition.

In conclusion, work done by L. Vagnetti, P. Tomkins, Y. Papadatos and K. Nowicki has shown that the north of the island

was subjected to various external stimuli coming from the Dodecanese or the Peloponnese in FN IV.⁵⁸ The recent work at Phaistos suggests that the south of the island was subjected to different influences, which arrived in the area in different phases and interacted on different levels to create the EM I cultural package, which is a composite palimpsest, with many pottery styles and technological traditions that coexisted in the region for a long period, hinting at the presence of several groups of potters who continued to produce according to technological traditions that appeared in the region between FN III and EM IA. The fact that the products of these different groups of potters were used together at consumption places such as tholos tombs suggests (as underlined by several ethno-anthropological researches) that ceramic styles and technological traditions have an important bearing for the definition of the cultural identity of their producers, more than for their users.⁵⁹ In this sense, the absence of some products from a site like Phaistos might be attributed to the fact that since its foundation it was a place of production and consumption of pottery.

It is all the more interesting therefore that by the end of EM II, when the potters of the Messara started to participate in the cycles of pottery production that took place at Phaistos prior to the acts of communal consumption performed on the hilltop, that the multiplicity of styles and potting traditions typical of EM I, gave way to an extraordinary homogeneity that persisted across the region throughout the Middle Minoan IIB period,⁶⁰ and best exemplifies the high level of cultural integration achieved by the communities of the region.

Notes

- ¹ The first two phases of occupation of the Phaistos hill, referred to as Neolitico inferiore and Neolitico superiore by L. Vagnetti, are dated to FN I and II by Ch. Nowicky and to FN III and IV, by P. Tomkins (2007b). In this paper Tomkins' chronological system is

followed. I would like to thank the organizers of the conference, for their help and assistance during and after the event; P. Tomkins, C. Nowicki, Y. Papadatos, R. Montesana and V. Amato for useful discussions; M. Metcalfe for editing the English text. Responsibility for any errors remains with the author.

2 For a complete and updated review of this issue see Papadatos 2008, 262–3.

3 For Knossos, see Tomkins 2007b; for Kephala-Petras see Papadatos 2008; Papadatos 2012; for Phaistos see Di Tonto 2004; Todaro 2005; Todaro 2013.

4 Hayden 2003; Hood 1990a; Hood 1990b; Nowicki 2002; Nowicki 2008a; Warren 1974.

5 Branigan 1970, 201; Evans 1974, 19–21; Renfrew 1972; Vagnetti 1996, 39.

6 Betancourt 2008, 4.

7 Koehl 2008; Weinberg 1965, 307.

8 Betancourt 2008, 5.

9 Todaro 2013, 28–9, fig. 5.

10 See, however, Nowicki 2002 and 2008 for a different view.

11 The study of a borehole that was drilled in 2001/2 to the north of Phaistos for a water supply that was not reached because drilling was aborted at >30m depth, showed that the seafront, between 4000 and 3500 BC, was along the line that connected the Phaistos hill with the hill of Ayios Onouphrios (Fytrolakis *et al.* 2005). This study confirmed the idea that had been proposed in the nineties by Gifford (Shaw and Shaw (eds) 1996).

12 Todaro 2013, 217–8, fig. 96. Phaistos IA and IB are not as yet well distinguished from a ceramic point view. See however Todaro forthcoming. for some preliminary remarks.

13 Todaro 2012b; Todaro 2013, 224–5.

14 Betancourt 1990, 25.

15 Vagnetti 1973b, fig. 2, 22; pl. 2, 4.

16 Evans 1968; Tomkins 2007b; Vagnetti 1973a; Vagnetti and Belli 1978.

17 Todaro 2013, 228–9, fig. 98.

18 Todaro and Di Tonto 2008; Todaro 2012a, 205; Todaro 2013, 78–9, figs 22, 24; 229–30.

19 Todaro and Di Tonto 2008, 183, 185.

20 This impression, based on the macroscopic examination of the pottery, has been confirmed by the preliminary results of the analyses executed by R. Mentessana, as part of a PhD project entitled *Technological and Social change in Phaistos, Crete, from the Final Neolithic through EMIIA*, conducted at the University of Sheffield under the supervision of P. Day, V. Kylikoglou, R. Doonan and myself.

21 Betancourt 2008, 4.

22 Day *et al.* 1997.

23 The label “Lebena style”, first used by Shachermeyr to indicate the early red-on-buff pottery documented at Lebena-Yerokambos, was later re-proposed to indicate the pottery in orange to buff fine fabric decorated in white on red, first known from Lebena (Betancourt 1985; Betancourt 2008).

24 Several specimens were found at Lebena-Yerokambos (Alexiou and Warren 2004, figs 22, 110, 125). The type is common at EM I Knossos (Wilson 2007).

25 Todaro 2013, 77–8, fig. 23.

26 The term “Late Neolithic” that appears in the publication of the results of the survey that was carried out in the westernmost part of the Mesara plain is clearly used as a synonym of FN inasmuch as it is applied to the earlier strata from Phaistos, which was first settled in the FN III period (see Todaro 2013 with previous bibliography). The Late Neolithic chronology proposed for some potsherds found by Taramelli in the Miamou Grotto is uncertain and cannot be verified as the materials, which were handed to the Heraklion Museum, are no longer traceable.

27 Vagnetti 1973b.

28 Taramelli 1897.

29 Vagnetti 1973b, pl. II, 5.

30 Nowicki 2002; Nowicki 2008a.

31 L. Vagnetti, for example, hypothesised that the shift from the lowlands to the highlands might have been caused by an increase in rainfall that would have made it healthier to live on a hill (Vagnetti 1973a, 132–3).

32 The study of the pottery found at Mitropolis has just been undertaken by S. Di Tonto, while the study of the pottery from the Acropolis at Gortyn has been initiated by the author.

- 33 Nowicki 2002; Nowicki 2008a; Papadatos 2008; Vagnetti 1996.
- 34 Kopaka this volume.
- 35 Watrous *et al.* 2004.
- 36 Todaro and Di Tonto 2008.
- 37 Todaro and Di Tonto 2008; Todaro 2012a; Todaro 2013.
- 38 Betancourt 2008; Watrous *et al.* 2004.
- 39 Alexiou and Warren 2004; Todaro 2005.
- 40 For Lebena see Alexiou and Warren 2004; Moni Odigitria (Vasilakis and Branigan (eds) 2010); Kala Selia (Vasilakis 1987, 45).
- 41 Todaro 2013, 273–4, fig. 113.
- 42 Driessen 2010; Girella and Todaro 2016.
- 43 Some scholars (Branigan 1970; Hutchinson 1962) proposed that the tholoi derived from mud-brick tholoi of the Syrian Halaf culture, attested in the late 5th millennium B.C.; these tholoi are however domestic rather than funerary architectural forms. Others (Alexiou 1961–2; Evans 1925, Xanthoudides 1924) proposed that they derived from circular tombs in Nubia or from Old Kingdom vaulted tombs in Egypt. Nubian tombs are however flat-roofed and usually solid cairns, and postdate most EM tholoi; Old Kingdom tombs in Egypt, on the other hand, have barrel rather than corbelled vaults and thus are not closely comparable to the EM tholoi. R. Hutchinson also considered the possibility that EM tholoi derived from Early Neolithic circular houses at Chirokitia on Cyprus through the small circular tombs of the Final Neolithic period at Kephala on Keos. However, the Cycladic tombs are minuscule when compared to most EM tholoi; moreover, the latter cluster in the south of Crete, whereas Cycladic influence in the island is mainly restricted to Northern Crete.
- 44 Alexiou and Warren 2004, fig. 62 A.
- 45 Alexiou and Warren 2004, figs 21.69; 22.150; 24.230.
- 46 Alexiou and Warren 2004, figs 22.114; 50 A (centre).
- 47 Alexiou and Warren 2004, figs 26.298; 70 A–B.
- 48 For the assemblage found at Partira see Mortzos 1972; for the vases found at Palekastro see Tod 1902–3.
- 49 The label “style of Beşik Tepe” was proposed by C. Renfrew to indicate the pattern-burnished ware found at Beşik Tepe, Kum Tepe Ia–Ib and Samos (Renfrew 1972, 77).
- 50 Warren 1965, 37–8; Warren 1969, 156–7; Warren 1974, 42–4.

51 This hypothesis seemed to be confirmed by the distribution of the chalice types across Crete, inasmuch as the type that was believed to be an earlier variant of the shape, seemed to be attested only at Knossos and in a few other sites of the northern coast of the island, while the type that was considered to be a later development was attested also in the south at sites such as Phaistos (Hood 1990a; Hood 1990b). Later studies (Wilson and Day 2000) have, however, demonstrated that the variants of the chalice do not have any chronological implication.

52 Todaro 2003; Todaro 2011a.

53 Todaro 2001.

54 Di Tonto this volume; Todaro forthcoming.

55 Hall 1997, 20–1.

56 On the importance of the past for the construction of social memory in prehistoric and contemporary societies see Van Dyke and Alcock 2008.

57 La Rosa 2001.

58 Nodarou 2012; Nowicki 2002; Nowicki 2008a; Papadatos 2008; Vagnetti 1996;

59 Dietler and Herbich 1994.

60 Day *et al.* 2006; Todaro 2011b.

Gavdos, or living on the southernmost Aegean island in the Neolithic cultural horizon

Katerina Kopaka and Efthimis Theou¹

Introduction

Gavdos is the largest and most distant of the satellite isles surrounding Crete, the only one inhabited over long periods of time which is indeed still peopled today. Together with its partner islet, Gavdopoula, it is located in the Libyan Sea, some 21 nautical miles off Chora Sphakion and 36 miles off both Palaiochora-Selinou and Ayia Galini, well west of the Mesara plain (Fig. 46.1). Thus, the island forms the southern frontier of Greece, and the south-easternmost part of European territory en route to Africa. Libya is, in fact, only 160 nautical miles away. Endowed with such a nodal geographical position and with several anchorages, Gavdos is, moreover, readily “targeted”, being of considerable size (ca. 34 sq km) and with an irregular profile up to 368 m above sea level. It is therefore visible from Central, West and South Crete, and was flagged as a “sea-mark” by ancient Mediterranean mariners.

In antiquity, Gavdos’s resources² included the wealth that comes from the sea – voyages, shipwrecks and, doubtless, piracy – but also fish, sea-mammals and seafood, and, most precious of all,

salt. They also included staple agricultural produce from its fertile interior, which was extensively cultivated for cereal crops, vines (and wine) and olives (and olive oil). Animal herding today involves mainly semi-wild goats, but previously there were sheep and cattle too. This insular setting hosts significant populations of native and migratory birds, and has a valuable local tree species in the cedar, which was exploited in the past for its wood, aromatic resin and edible fruit.

The island is furthermore blessed with various “useful” geological materials: pre-Neogene flints and cherts for making prehistoric chipped stone tools and metamorphic rocks, good for stone axes, vases, and other artefacts; Neogene marls, sandy and marly limestones, *i.e.* plenty of clays for ancient potters; abundant wood and stone for building, carving *etc.*; and a limited but exploitable supply of metals, notably copper and iron ores (see below). The landscape is seamed with dried-up gorges, showing the amount of water the island used to have, which is now completely lost. Characteristic features of the markedly eroded and tectonically fragile Gavdiot environment are numerous rock-shelters of different sizes, which greatly enhance the space available for long-term domestic living and burial.

The Gavdos project started in 1992–3 with an intensive archaeological survey, which was conducted throughout the 1990s by the University of Crete and the 25th Ephorate of Prehistoric and Classical Antiquities, and with a multidisciplinary research approach coordinated by the University: both avenues aiming to investigate diachronic natural, social and cultural traits of the island.³ In 2003, the Department of History and Archaeology started an ongoing systematic excavation inland, in the region of the University’s field station – a restored metochi at Siopata on the Tsirmiris hill.⁴

The survey was conducted in a particularly artefact-rich insular environment, and has led to the first archaeological map of Gavdos through time. It also revealed a very long prehistoric past

that started early in the Palaeolithic,⁵ and embraced the Neolithic and Bronze Age periods.

Neolithic Gavdos

It is near the opening of this bay, and following the course of its laughing valley, that the remains of the oldest Aegean civilization are scattered – that of those Neolithic peoples who, for thousands of years, sowed in patience the seed of the future Cretan culture. There are myriads of sherds of the usual workmanship, their surface covered with some greasy material, polished with a spatula, and baked at an open fire. Their reds, browns, and blacks show that there must have been settlements of immense antiquity round the Bay of Karavi. (Levi 1927, 181–2)



Figure 46.1. Map of western Crete and Gavdos.

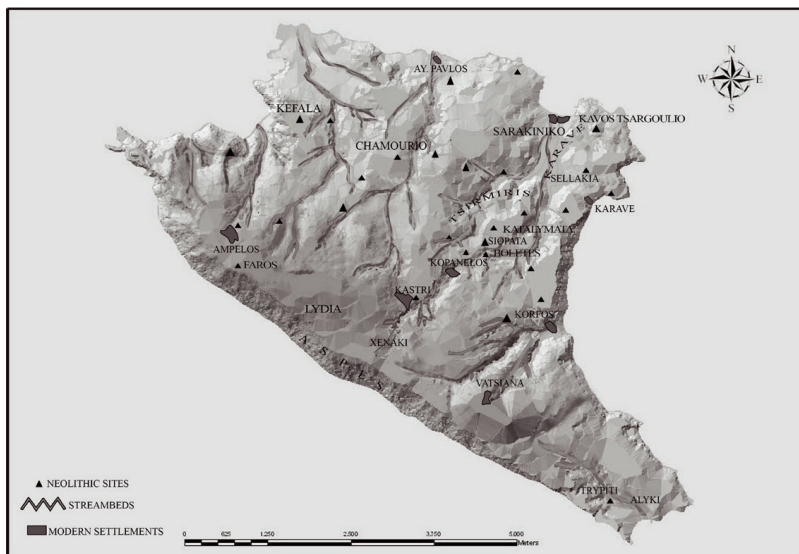


Figure 46.2. Distribution of the main Neolithic sites on Gavdos (map by M. Maniadakis, adapted by P. Stefanaki).



Figure 46.3. The promontory of Kavos Tsargoulia from the west.

Neolithic Gavdos “entered the wider (archaeological) world”⁶

already in 1925, thanks to the observations of the archaeologists D. Levi and A. Colini during their short visit to the island from Phaistos.⁷ Today, the island is more and more often included in bibliographies on the Late and Final Neolithic⁸ and the beginning of the EBA,⁹ also thanks to the preliminary results of our study¹⁰ – which are modified, however, by our recent systematic examination of the material.

Site distribution and dating

Neolithic occupation on Gavdos is dense (Fig. 46.2), maybe also because of the arable land and various natural resources provided by the island, as mentioned briefly in the introduction. Relevant surface evidence is confined to almost 30 open-air sites of different sizes, which sometimes include eroded architectural remains and often one or more rock shelters, usually collapsed. They show a predilection for middle-range altitudes, in both coastal and interior zones of the northern, eastern, central and up to the southernmost parts of the island, as a rule on or near a stream or at a gorge rim, and offering extensive views over sea and land.

An interesting feature of the overall spatial distribution is the marked intervisibility of the sites, with each one being visible from at least one other with comparable topography. This functional principle usually allowed us to detect, just by looking right around from one known spot, other compounds, and so to shape by the eye almost a chain of Neolithic sites. Several sites are close to Palaeolithic/Mesolithic spots,¹¹ or are on or near EBA and often even later prehistoric locations.

Gavdos's emblematic Neolithic site is on the hilly promontory of Kavos Tsargoulia (S.27, henceforth Kavos) that forms the east side of the bay of Sarakiniko (Figs 46.2–3). It occupies the north-western edge of the Karaves Peninsula on the north-eastern part of the island, which hosts the main deposits of native metamorphic rocks and several minerals too (see below). The settlement covers 45,000–50,000 sq m of the summit and gently sloping side of the

hill, at a max. height of ca. 63 m, running up to the sheer north edge of the cape over the sea. Wells for water were until very recently easy to dig in the sandy beach at the foot of the hill.

On site, we encountered some eroded terrace walls and, especially, scatters of worn slabs of whitish limestone from collapsed structures. A modern ruined metochi must have been constructed with such ancient building materials. Pottery was abundant (ca. 2–10 sherds/sq m) and very uniform (Figs 46.4–7). Our “Kavos ware” is very typical and has been easily recognized at many other sites on the island. It consists of rather standardized types of open vases of different sizes in local clays, almost exclusively in a characteristic fabric (see below). Its “archaic” aspect—with which the lithic assemblage from the same site is in accord—bestows the general impression that this is the earliest pottery detected on Gavdos: we suggest of Middle Neolithic date.

From the pottery evidence, other sites on Gavdos do belong to later phases, ranging from FN III/IV to FN IV/EBA I or early EBA I. Among them, as collected and also excavated material shows, the wider area of Siopata has hosted a remarkable succession of these phases – down to the EBA and on into the 2nd millennium BC. The same region provided good evidence of Palaeolithic and Mesolithic occupation.

Pottery assemblages

I. Middle Neolithic Kavos pottery (Figs 46.4–7)

The Kavos pottery is mostly represented at Kavos Tsargoulío where it forms a homogeneous and most abundant type of ceramic; but smaller related surface scatters and sporadic sherds are also recorded from almost all over the island.

Kavos fabric (Figs 46.4–5) is coarse, soft and often somewhat “greasy”, with fairly dense red-brown mudstone and, to a lesser degree, white and black siliceous inclusions; some sherds, mainly from the base of vases, show organic temper imprints. Due to uneven firing, pots have vivid orange-red to reddish-brown

surfaces (we call it “bichrome” ware), and thick light grey or bluish-grey or grey-brown cores.¹² They are as a rule nicely smoothed, burnished and often polished, and sometimes preserve traces of a shiny slip.

Shapes consist in their vast majority of open-mouthed vases, mainly large and medium-sized:

Jars, basins (Fig. 46.6a), and maybe a few pithoi.¹³ Most of them have characteristic triangular rims built by a strap of clay “folded” over their core, which are turned in to receive a lid – both local pottery features which persist into much later periods.

Bowls of various sizes (Fig. 46.6b) with rounded¹⁴ and one with a carinated profile,¹⁵ which have smoothed surfaces and are sometimes polished inside. One example has two fairly large holes below the rim.¹⁶ Two sherds belong to very small (miniature?) cups.¹⁷

Double horned wishbone handles are very typical of the Kavos group (Figs 46.5, 46.7).¹⁸ They range from tiny to really large examples and were fastened obliquely to the rim of bowls and other open-mouthed vases. Some are further decorated with three successive plastic knobs on the outer edge.¹⁹ One wishbone handle has a perforation in its shaft. Less well represented are simple flap,²⁰ strap²⁰ and tubular²¹ handles.



Figure 46.4. MN pottery from Kavos ("Kavos ware").



Figure 46.5. Pottery handles from Kavos.

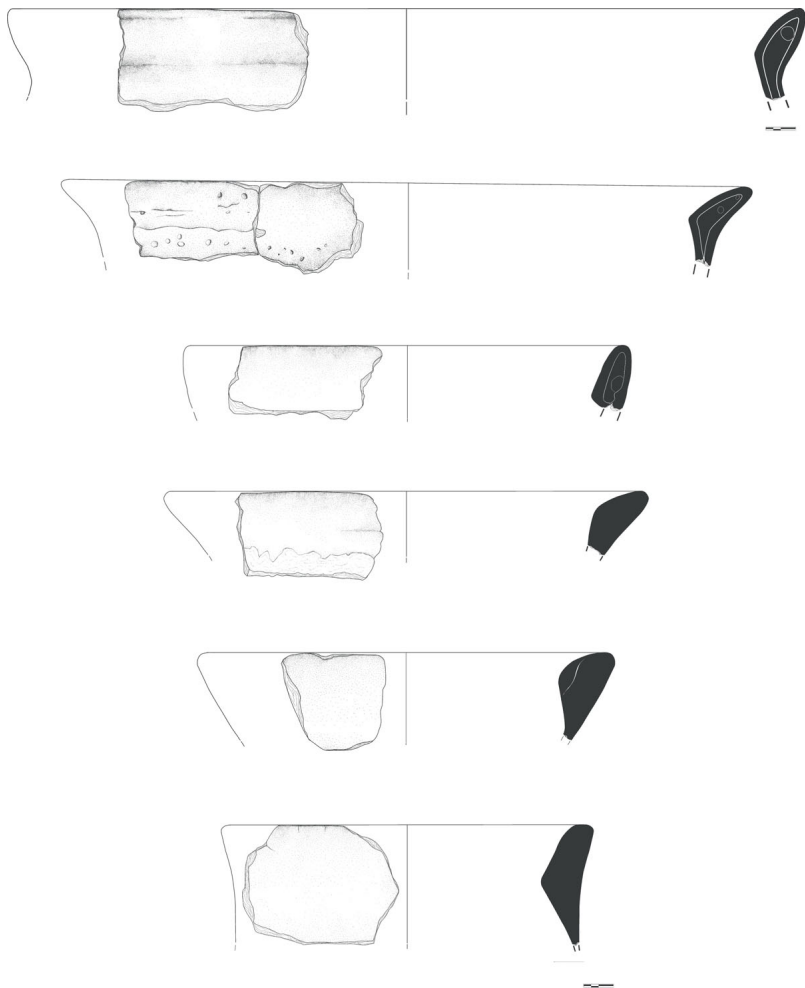


Figure 46.6. Drawings of vases from Kavos: a. jars and basins.

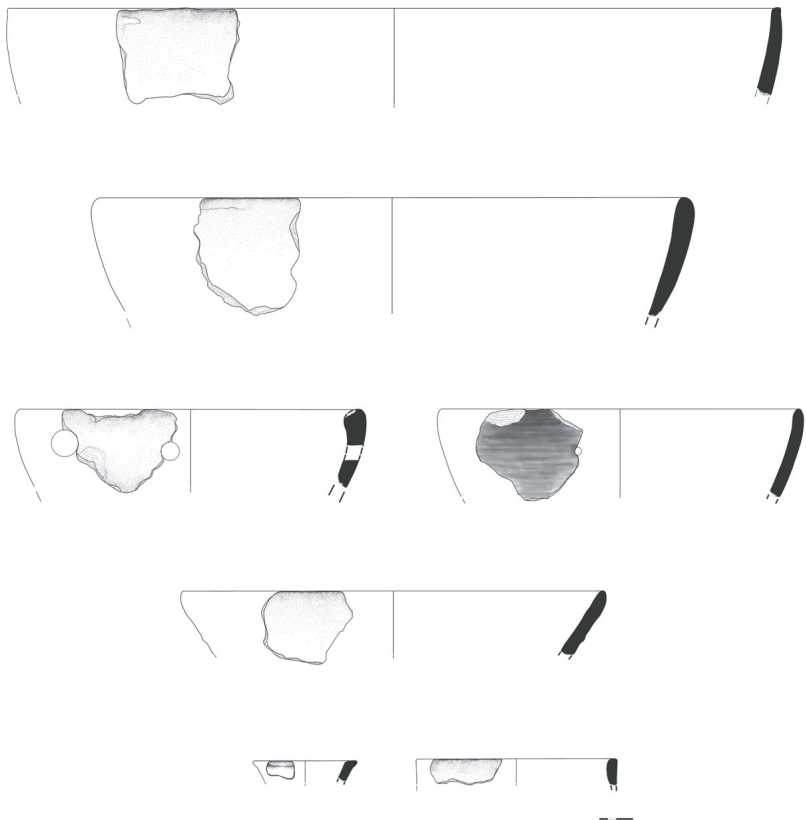


Figure 46.6. Drawings of vases from Kavos: b. bowls.

Dating the Kavos pottery is not an easy task. In the past, we placed this assemblage in the Final Neolithic,²² mainly influenced at the time by the paucity of earlier Neolithic evidence on the Aegean islands, and especially the small ones – a situation only rather recently changed. But the Kavos fabric and shapes have in fact scarce—if any—parallels, and do not match the Late Neolithic phases. Instead, they seem to be better placed as far back as the early 6th millennium, *i.e.* J.D. Evans's and A. Furness's Early Neolithic and Early Neolithic I and P. Tomkins's Middle Neolithic.²³ This re-assessment is mainly based on the appearance of double horned wishbone handles at Knossos, where such handles appear in strata IX–VIII, are best represented in stratum

VII, and last traced in stratum VI.²⁴

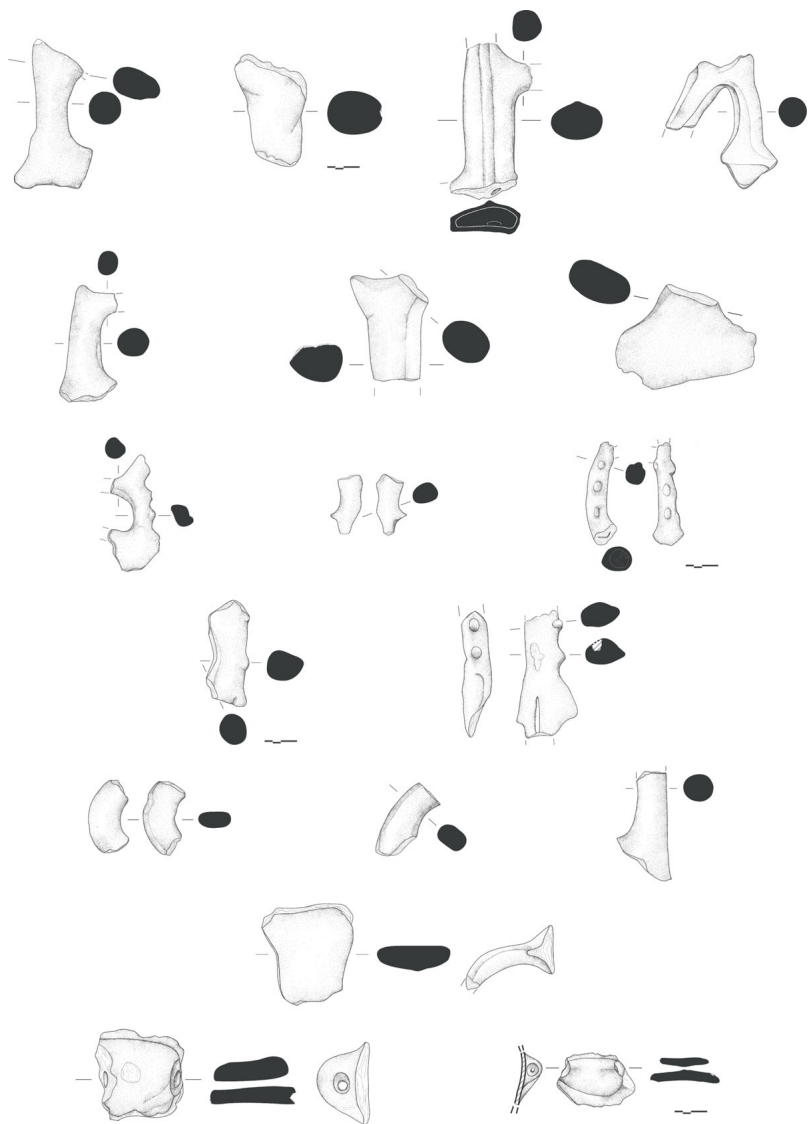


Figure 46.7. Drawings of handles from Kavos.

II. FN III/IV pottery

FN III/IV pottery (Figs 46.8–9) has been mainly found (together with sherds of vases of the assemblage III.1 presented below) in

two trenches opened in front of a row of collapsed shallow rock shelters close to Siopata/Metochi (in our Sector II).²⁵

The relevant fabric is semi-coarse and hard, *i.e.* well baked, with mainly small white siliceous inclusions and thick grey cores, and is like the Final Neolithic III–IV “red ware” identified by K. Nowicki at sites on the Cretan coast opposite.²⁶ Pot surfaces have a pink/reddish to grey-brown colour, unevenly distributed, and are often burnished.

This group includes vases of small and medium size: bowls with offset rims;²⁷ two “cheese-pots”;²⁸ one bowl with curved rim²⁹ and vertically pierced lugs; a hole-mouthed jar with incurving rim and vertically pierced lugs;³⁰ frequent horizontally pierced lugs³¹ below the rim of open or wide-mouthed vessels; and one hole-pierced strap handle.³²

III. FN IV/EBA I

FN IV/EBA I or EBA I pottery³³ shows two varieties.

1. Sherds unearthed at Siopata and also collected from some other sites belong to vases of medium and small size, of fine fabric and good quality, made of a well baked grey-brown to black clay with thin white and black inclusions (Fig. 46.10).

Characteristic here are at least four rounded bowls, with horn-like projections on the rim, in two cases turning outwards almost at right angles, and a small horizontally pierced lug or a strap handle beneath. They are all thoroughly smoothed and polished and bear pattern burnished motifs.³⁴

A good match for this ware is a set of Gavdiot vases from near Korphos in the eastern part of the island, now in the Chania Museum. They were found in the late 1990s in a rescue excavation by the 25th Ephorate, and include bowls with projections, cups with stands, a pyxis with cylindrical lid *etc.* They have been dated to the Final Neolithic and attributed to the Partira group.³⁵

2. Many sherds from Gavdos but also from neighbouring Gavdopoula belong to vases of medium and small size and seem to represent also a transitional FN IV/EBA I or an early EBA I phase (Fig. 46.11).

Their semi-coarse fabric shows an improved firing process, has less often red-brown mudstone inclusions but mainly small siliceous white and black ones, and features an increased quantity of mica. Vases have plain reddish-orange to reddish-brown or even light brown surfaces, and almost no differential core colouring. Some sherds bear a shallow scored decoration—so familiar in EBA Gavdos and Crete—,³⁶ and a few others have plastic rope bands.³⁷

Shapes include pithoid vases and jars,³⁸ small basins, concave bases of “fruit stands”, a collared jar,³⁹ rounded bowls, one with a flat-topped rim,⁴⁰ and oval-section handles.

Two fragments of a “crucible” from Gavdopoula (see below) appear to belong to this group.

Lithic assemblages (Lia Karimali)

A preliminary examination of both flaked and polished stone industries collected at Kavos Tsargoulío as well as those from the Siopata/Sector II excavation trenches leads to the following observations.⁴¹

Kavos chipped stone industry (Fig. 46.12a)

The site yielded more than 300 flaked artefacts (both debitage and tools), in their vast majority made of fine native black flint. The general impression is that of an industry of local character, as indicated also by the presence of a few small-sized cobbles/pebbles (length 38–42 mm) and cortical flakes of various sizes (length 15.5–33.48 mm). Lithic strategies were highly expedient (*i.e.*, no evidence of preparatory techniques such as creting was recorded), but show a high degree of “technological” coherence. Pebbles were intensively struck by direct percussion blows. Flakes

of appropriate size and convexity were turned into atypical tools, mostly denticulates or flakes with notched and nosed ends and retouched margins (approx. N=25). Not all cortical flakes were turned into tools, a fact demonstrating *in situ* opportunistic production. Noteworthy is the presence of: a) a rounded micro-scraper made on a cortical flake ($21.55 \times 19.66 \times 9.54$ mm), and b) a sickle fragment made on a cortically backed flake with extensive gloss lying parallel to the edge.

Heavy duty scraping and cutting implements have also been reported in the Mesara Plain on Crete (in LN/EBA I).⁴² The absence of blade production in the Kavos lithics is, on the other hand, striking. Blade-flake or bladelet fragments (*i.e.* 13.88×5.31 mm) are very few. The same is true for flake cores (*e.g.* conical, discoid), which are commonly reported from the Mesara and other sites of LN date.⁴³

Kavos polished stone industry (Fig. 46.12b)

At least eight polished implements were collected from Kavos. Among them, a complete small-sized axe with symmetrical edges ($56.04 \times 48.89 \times 20.86$ mm) and three or four polished stone specimens in secondary use. It is a common strategy at Gavdos to recycle such tools by flaking off the sides, sometimes retaining the original cutting edge of the tool – although this is not always necessary. Such flaking may be due to new hafting needs. Otherwise it seems that polished stone cutting tools were re-used as flaked tools (*e.g.* a fragment was turned into a side scraper) – a strategy which shows perhaps the need for economy of raw material.



Figure 46.8. FN III/IV pottery from Siopata/Sector II.

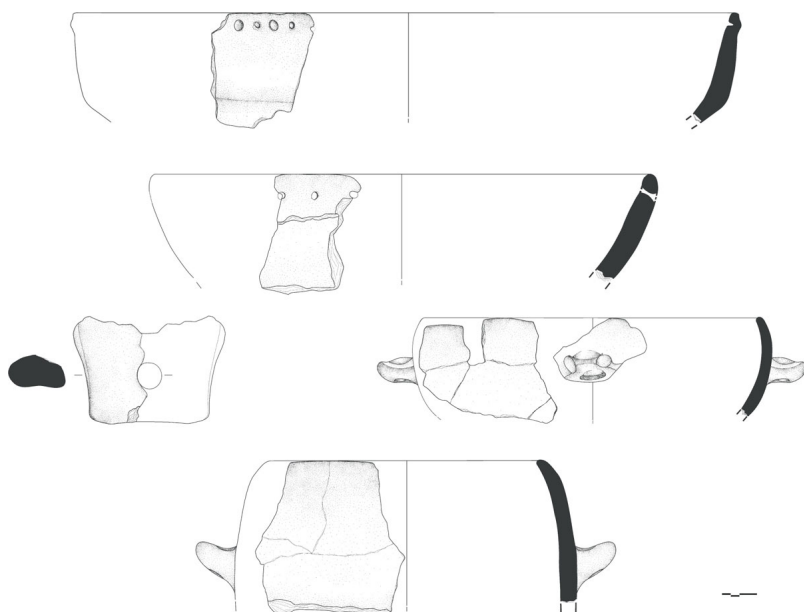


Figure 46.9. Drawings of FN III/IV pottery from Siopata/Sector II.

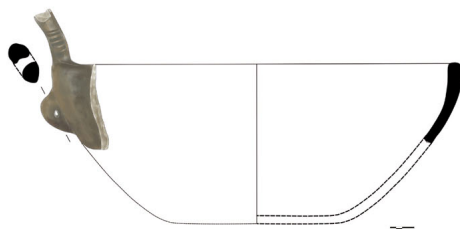
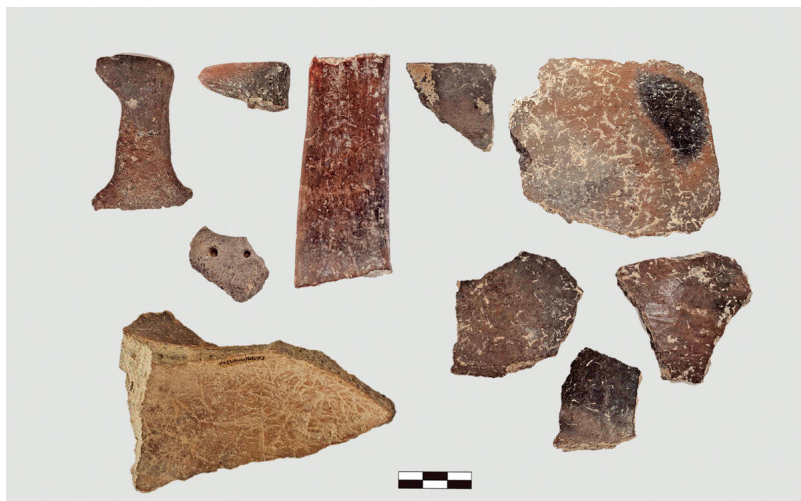


Figure 46.10. FN IV/EBA I or EBA I pottery (first group).

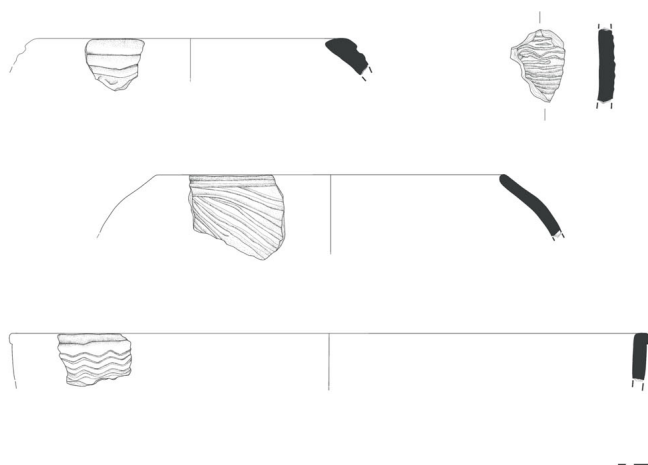
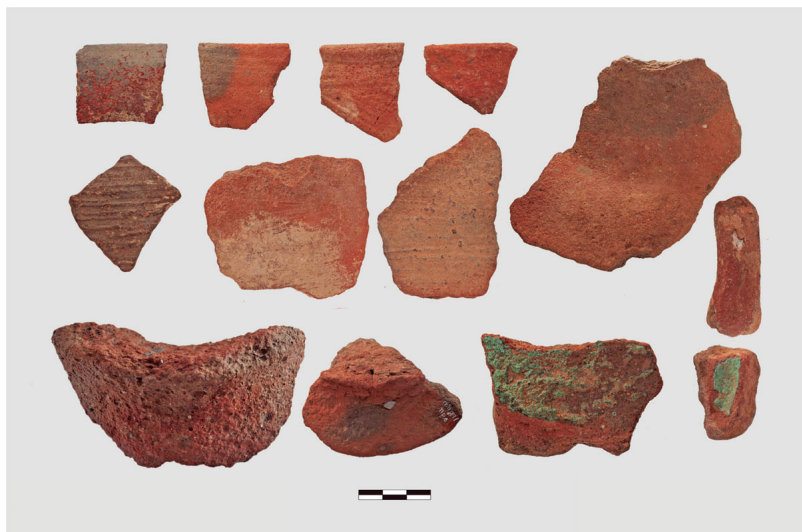


Figure 46.11. FN IV/EBA I or EBA I pottery (second group).



Figure 46.12. Lithic material from Kavos Tsargoulia a. flaked, b. polished.

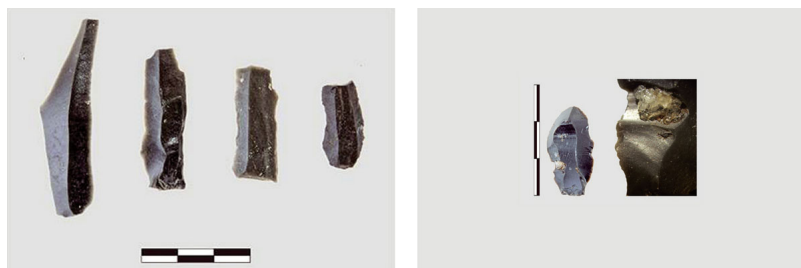


Figure 46.13. Lithic material from Siopata a. obsidian blade fragments b. flake with resin residue (E. Chriazomenou, magnif. 20x).

In general, several features (i.e. expedient lithic strategies, absence of blade production, presence of expedient heavy duty tools of wide chronological range alongside the existence of tools of pre-Neolithic date) all assign an “archaic” character to the industry of Kavos.

Siopata/Sector II chipped stone industry (Fig. 46.13)

Thirty-seven chipped stone pieces, in their majority made of local black flint, come from the excavated trenches at Siopata, Sector II (see above, for the pottery). In addition, a large rounded pebble of black flint ($67.52 \times 63.24 \times 33.93$ mm) had been used as a pounder.

Interestingly enough, obsidian is well represented, mainly by five pressure blade fragments, ranging in thickness from 2.95 to 3.67 mm (Fig. 46.13a), one crested flake and two platform rejuvenation flakes. The blades bear facettted butts and overhangs, strategies used in the LN and onwards in the Aegean.

Two sickle elements of local black flint are noteworthy: one made on a lunate-shaped flake, and another on a blade/flake with traces of a white/yellow to dark red/brown residue (Fig. 46.13b).⁴⁴ Use-wear analysis by E. Chriazomenou has shown that the sickle element was inserted laterally at an oblique angle into a

wooden haft and was fixed with resin. The use of flakes or blade/flakes as sickle elements – instead of the blade fragments typical of the Neolithic period – also assigns a rather “archaic” character to the Gavdos industry.

Industrial activity?

***Copper exploitation at Neolithic Kavos?*⁴⁵**

Worth mentioning is the presence of copper ores in the immediate periphery of the site of Kavos (Fig. 46.14a). Raw material *in situ* (Fig. 46.14b) provides further evidence of copper extraction, and even, perhaps, smelting, very probably before the end of the Neolithic.⁴⁶ The exceptional find by P. Drosinou at Gavdopoula of two fragments of a “crucible” or other thick clay vessel with a solid layer of melted copper (Fig. 46.14c),⁴⁷ together with pottery of our FN IV/EBA I or EBA I (above, group IIIb), clearly supports this suggestion.

Iron ore deposits are also present in the vicinity of Kavos, as indicated by an apparently ancient mine at the site called *Lavrio*, immediately to the north of the Neolithic settlement, which, according to the inhabitants, was also exploited by the mid-20th century AD.

Pottery firing at FN/EBA Siopata?

A circular stone structure at Siopata/Sector II (Fig. 46.15, dia. 2.92 m, height 0.35–0.67 m) could correspond to the eroded platform of an open-air pottery kiln. It is located next to the fringe of the collapsed rock shelters which provided FN III/IV and FN IV/EBA I or EBA I pottery. The latest unevenly fired sherds found on its burnt upper surface are of early EBA date.

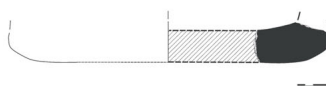


Figure 46.14. a. Copper ores below the site of Kavos, b. copper raw material at Kavos, c. the Gavdopoula “crucible”.

Interestingly, this is not the only such structure known on Gavdos. At least one other has been detected in the same general area, and likewise it had a burnt surface and a dense scatter of FN and EBA pottery and lithics. But these early structures remain without clear parallels and their form, location, contexts and

function need further investigation.

Conclusions

The Neolithic of Gavdos is a new contribution to the awakening of scientific interest in the period on Crete,⁴⁸ and adds to our knowledge and understanding of early life activity on both islands. The preliminary results of our study:

1. Bring Gavdos into the societies of the Neolithic and reveal traits in the island's production, *e.g.* in site distribution, subsistence and technological strategies, which are often familiar, especially by Final Neolithic times: from the many other communities of the Aegean and Crete, including those on the South-Western Cretan littoral opposite Gavdos,⁴⁹ and others that “overflowed” onto the offshore islands of Dia, Kouphonisi, Chri⁵⁰ (and Gavdos and Gavdopoula).
2. Show that significant components of Gavdos's earlier and later material culture were present also in the Neolithic: mainly, intensive ceramic production (a solid local “traditional” industry ever since)⁵¹ and stone tool making, and a very probable exploitation of metals. These helped form long-lasting features in Gavdiot identity: thorough use and habitual recycling of natural and human-made goods at hand, and persistent, “conservative” native options, technical, aesthetic and other, are certainly two of them – and they generally result in the existence of atypical and intensively used artefacts on Gavdos. But rapid assimilation of new tendencies and strategies, for example, again, in potting and maybe the metallurgical processes, is definitely another very valuable attribute.
3. Profile lively local communities of islanders, eager to exploit almost every inch of their restricted, sea-bound territory. Their shared Aegean traits support the idea of prompt and substantial maritime communication and interactions of Gavdiots not only

with “mainland” Cretans but also with people of the wider world:⁵² perhaps already quite early in the Neolithic, if the Kavos pottery is as old as we suggest. Confirmation of this suggestion⁵³ would be extremely significant for an overdue general discussion on the Neolithic of Crete. It would provide us, furthermore, an important “missing link” in the prehistoric lifespan of Gavdos, from the island’s Palaeolithic and Mesolithic to its quite early Neolithic cultural horizons.



Figure 46.15. Circular structure at Siopata: platform of an open-air pottery kiln?

Notes

¹ We thank the Organising Committee for the novel initiative of this Symposium, and its patience with the Gavdos paper; we also thank the anonymous peer reviewer for his/her comments on this paper. Sincere thanks are also due to K. Manteli, P. Tomkins, K. Nowicki, S. Katsarou-Tzeveleki and M. Velegraki for their specialist points of view on the Neolithic pottery; C. Papadaki, N. Chetzogiannaki and E. Peraki for earlier help with the abundant prehistoric pottery from

the Gavdos survey; P. Stefanaki, for the drawings in this paper as well as in the *longue durée* of our research; last but not least, D. Markaki, E. Chriazomenou, C. Papoulia, V. Vlachou and A. Kopidaki, most of them students at the Department of History and Archaeology of the University of Crete, who worked hard with us on the studied material; and all other students and colleagues who have contributed loyally to the Gavdos project over the last twenty years. We are grateful to G. Cadogan for his help with the English text which reminded us of our late afternoon climb with him to Kavos Tsargoulío in the early 2000s. Photographs of the finds are by Y. Papadakis-Ploumidis, unless otherwise stated. Financial support of the Gavdos project has been provided regularly by the University of Crete. The 1996–99 study seasons were kindly supported by the Institute for Aegean Prehistory (INSTAP).

2 See also Kopaka 2002.

3 Kopaka *et al.* 1994–96; Kopaka 2001.

4 Kopaka 2007; Kopaka 2009; Kopaka forthcoming.

5 Kopaka and Matzanas 2009; Kopaka and Matzanas 2011.

6 *cf.* the sub-title of Vagnetti 1996, which we are paraphrasing here.

7 Colini 1925–26; Levi 1927.

8 Nowicki 2008a, 220 (the author visited Gavdos in the 1980s) and Nowicki 2014, 238; Tomkins 2008, 34, [figs 3.1](#) (LN I–II), 3.5 (FN III–IV).

9 Betancourt 2008, 64, fig. 1.1.

10 Kopaka and Papadaki 2006, 65–70.

11 For example, those at Kavos (S.27), Siopata/Boletes (S.44), Siopata/Metochi (S.100D), Kephala (S.58), Chamourio (S.78) *etc.*

12 For Knossos and Katsambas, *cf.* Furness 1953, 103; Galanidou and Manteli 2008, 169, 171.

13 *cf.* Galanidou 2011, 39.

14 *cf.* Furness 1953, 103, 110, figs 4.7–9, 11; 6.1–7; Galanidou and Manteli 2008, 171 (fine ware).

15 *cf.* Furness 1953, 105, fig. 4.15; Galanidou and Manteli (above note 14).

16 *cf.* Levi 1927, fig. p. 181 (a), from Gavdos, most probably from Kavos too; *cf.* also Galanidou and Manteli 2008 (above note 14).

17 *cf.* Furness 1953, 112, fig. 7.17–8.

18 *cf.* Evans 1964, 203–5, 208, figs 25.14–7, 45, pl. 45.3.4–5;

Furness 1953, 108, fig. 5a.2–4; Tomkins 2007b, 23, 25, [fig. 1.4.21](#). See also Dimaki 1994, figs 8–9; Wace and Thompson 1912, fig. 134a, for examples from Thessaly, where, interestingly, the closest parallels to the Kavos handles seem to come from at the present stage of our research.

[19](#) cf. Furness 1953, 108.

[20](#) cf. Furness 1953, 108, pl. 29.a1; Galanidou and Manteli 2008 (above note 14).

[21](#) cf. Galanidou and Manteli 2008 (above note 14); Tomkins 2007b, [fig. 1.4.32–3](#).

[22](#) Kopaka and Papadaki 2006, 65. Nowicki (2014, 328, fig. 162.10) reports a “cheese-pot” from the same site.

[23](#) Tomkins 2007b, 13, tab. 1.2

[24](#) Evans 1964, 208, fig. 45.

[25](#) See also Nowicki 2014, 238.

[26](#) Nowicki 2002, 53–4.

[27](#) cf. Nowicki 2002, figs 28.5–6; 30.1, 4–5.

[28](#) cf., e.g. Nowicki 2002, 54, 59, fig. 32; Papadatos 2008, 262, fig. 15.4f, 265; Tomkins 2007b, 44, [fig. 1.15.2–3](#); Vagnetti *et al.* 1989, 62–3; Vagnetti 1996, 31–2. See also, e.g. Kalymnos (Benzi 2008, 96, fig. 370); Kalythies Cave Rhodes (Sampson 1987, 30); Kea (Coleman 1977, 17–18, pl. 84.A–D); Paros (Katsarou and Schilardi 2004, 39, [fig. 10.1–8](#)); Partheni Leros (Sampson 1988a, 88); Skoteini Tharrounia (Sampson 1993a, 129, 166, 184–5, 231, figs 121.5–8, 14, 16; 187; 188; 211.2; 212.31; pls 159–60); Yali (Sampson 1988a, 96, 100, 102, fig. 59, pl. 62).

[29](#) cf. Tomkins 2007b, 42, [fig. 1.15.7–8](#); Vagnetti *et al.* 1989, fig. 24.117.

[30](#) Nowicki 2002, fig. 29.13; Tomkins 2007b, 42–4, [fig. 1.15.6](#); Vagnetti *et al.* 1989, fig. 20.75.

[31](#) cf. e.g. Di Tonto 2011b, fig. 2.6c; Manteli 1992, figs 2–3, pl. 1.b–d.

[32](#) cf. Manteli 2006, 14; Nowicki 2002, fig. 30.21; Tomkins 2007b, 41, fig. 1.13; Vagnetti 1973a, fig. 59.5.

[33](#) Apparently, P. Tomkins’s *EM I* (“*Sub-Neolithic*”) material (Tomkins 2007b, 44–8, tab. 1.6).

[34](#) See also Kopaka 1998, fig. 312; cf. e.g. Alexiou and Warren 2004, 69, fig. 21.69, pls 40d, 41a, 110a; Betancourt and Marinatos 2000,

191, fig. 11.12; Marinatos 1930, fig. 6; Mortzos 1972; Tomkins 2007b, 46, fig. 1.16.3.

35 Drosinou 2006, figs 10–13. See also Betancourt 2008, 66–7, figs 5.27, 5.30.

36 Kopaka and Papadaki 2006, 69–70, pl. 1.3–4; *cf. e.g.* Betancourt 2008, 64; Hood and Cadogan 2011, 28–30 with discussion and references to FN–EBA evidence from Crete and the wider Aegean and East Mediterranean; Tomkins 2007b, 46, fig. 1.16.1; Mosso 1908, fig. 36.1–2; Nowicki 2014, 297; Vagnetti 1973a, figs 30.3; 58.8; 60.26; 82.1; 86.1, 3-6; 87.1-4; 102; Warren and Tzedakis 1974, 321–4, pls 52d, 53; Wilson 2007, 54, fig. 2.3.4–5. Also, Di Tonto this volume.

37 *cf.* Papadatos 2008, 264, for a different decoration in relief.

38 *cf.* Papadatos 2008, 263–4.

39 *cf.* Papadatos 2008, fig. 15.6b; Wilson 2007, fig. 2.4.6.

40 *cf.* Wilson 2007, fig. 2.4.3–4.

41 Surface lithics collected from both Kavos and the Siopata region also involve a wide range of tools of Palaeolithic and Mesolithic date, which are being studied by C. Matzanas (Kopaka and Matzanas above note 5).

42 Blitzer 2004, 514.

43 Blitzer 2004, 513.

44 Papoulia and Chriazomenou 2013, 357–8 (where the Siopata lithic assemblages from Sectors I–III are further presented and discussed) and Chriazomenou *et al.* 2014.

45 For Gavdos’s copper deposits, see the early report and analysis of A. Mosso (1910, 292, 296–7); and also Hazzidakis 1912/13, 47, for a comparison of the chemical composition of the bronze blades and swords from the Arkalochori Cave to that of copper ores at Gavdos, Kydonia, Selino and elsewhere. See also Branigan 1968, 52; Muhly 2008, 36.

46 *cf.* Catapotis *et al.* 2011. See, also, Betancourt 2006, esp. 179–80.

47 Drosinou and Kopaka forthcoming. For early crucibles and related evidence from the Aegean and Crete, see *e.g.* Betancourt and Muhly 2007; Coleman 1977, 4, pl. 22, 66; Doonan *et al.* 2007, 104–5; Renfrew 2003, fig. 8.4, pl. 8.10–1 (*ca.* 40 sherds with copper incrustations from Sitagroi).

48 See also Nowicki’s extensive recent synthesis (Nowicki 2014).

49 Nowicki 2002, fig. 1; Nowicki 2008a, [fig. 13.1–4](#).

50 Nowicki 2008a, 218–20, fig. 13.20–22. For Dia, see also Kopaka 2012, 451–2.

51 Kopaka and Papadaki 2006.

52 See also Papadatos and Tomkins 2013. For inspirational theoretical insights into the earliest Neolithic Crete and Greece, see Kotsakis 2008c. For the insular identity of Gavdos's communities, which has spurred in time their sense of isolation but also always promoted vital communication and interaction with the world beyond, see Kopaka 2005, esp. 98–100.

53 Mainly through the systematic publication of Cretan MN assemblages like the one from the Gerani Cave (Tzedakis 1980). See also Tomkins 2007b, 25.

The entry of Cyprus into the circum-Aegean world and the growth of regionalism on the island

Edgar Peltenburg†¹

Introduction

Cyprus lies *ca.* 450 km east of Rhodes, the south-east corner of the circum-Aegean world. Most would agree that, geographically, Cyprus is too distant to belong to that area. and yet, in cultural, historical and demographic terms, the island became closely associated with it in antiquity. Hence, the questions addressed here are: When did involvement commence? And, more specifically, what impact did it have on Cyprus? To answer these, we need to assess evidence from the 3rd millennium, since it was then that formative contacts are discernible. The relevant Cypriot chronological periods are Middle Chalcolithic (MChal) *ca.* 3500–2800 BC, Late Chalcolithic (LChal) *ca.* 2800/2700–2500 BC, Philia *ca.* 2500–2250 BC and Early Cypriot (EC) *ca.* 2250–2000/1900 BC. Such a long-term view is necessary in light of the slow pace of extra-island contact evidence and in order to shift the perennial Cypriot focus from a notable episode of intruders (the Philia) to the perspective of indigenous society. In so doing, I shall argue that those contacts enabled the construction of new identities, ones that led to the destabilisation of society and eventually to the

regionalisation of the island, a geo-political framework that was to become an abiding feature of its subsequent history.

The Middle Chalcolithic period

As is made clear in the recent Cyprus volume of the ARCANÉ series, the *floruit* of this period, ca. 3200–3000 BC, witnessed a marked cultural unity throughout the island.² From Kythrea in the north to Kissonerga-Mosphilia (henceforth Kissonerga) in the west, there were undefended villages with standardised circular buildings divided into four functional segments with a central platform hearth.³ Individuals were typically buried in pits cut into the walls of the buildings (wall graves), presumably upon their abandonment. Communities used painted Red-on-White (RW) pottery with a common symbolic system deployed in the use of elaborate motifs and compositions on uniform shapes.⁴ That such homogenous traditions emerged within small-scale society across the topographically divided island required strong social interaction and promotion of supra-regional values.⁵

Such values are epitomised by the fluorescence of a well known symbol: the cruciform-shaped figurine.⁶ Concentrated in the south-west, these anthropomorphs are found throughout the island. Larger examples were made from substantial slabs of picrolite that could not be found in the lower reaches of rivers, the assumed source for this soft stone. Recent excavations at Souskiou-Laona have shown that, in order to satisfy the desire for ever-larger figurines, picrolite was very probably obtained from the Troodos Mountains where there are no known settlements of the period. Seams of picrolite there were quarried for the slabs that were found as raw material at Souskiou.⁷ Clearly, people from the lowlands or foothills explored the forested and often snow-clad highest mountains of the island in pursuit of this prized stone, an equivalent of long-distance voyaging. So, in addition to their figurative symbolism, the materiality of the cruciforms also embodied the strange, the remote, even mystical qualities of rare

mountain picrolite, often as blue as the sky.

Although referred to as figurines, the cruciforms are more accurately described as anthropomorphic pendants which, according to *in situ* examples and depictions, were worn at the neck. Their visual impact did not just communicate a uniform sense of belonging and identity but also helped to create corporate groups across the island. That there was increased attention for the appropriate display of the body now is also confirmed by the proliferation of body display ornaments. Given the ritual burial of much related material within a cluster of dominant buildings at Kissonerga, cross-island coherence amongst dispersed groups may have been generated by people with ritual authority.⁸

The intensified search for picrolite in the copper rich central belt of Cyprus probably initiated an interest in copper, since it occurs as objects for the first time in the same burials as the cross-shaped objects. It may even have been exported in the first half of the 3rd millennium to the circum-Aegean area, to judge from lead isotope analyses of objects from Ayia Photia.⁹ Further indications for meaningful external contacts consist of segmented faience beads of types well known in Syro-Anatolia.¹⁰ There is little or no evidence for external contacts in the preceding 5th and most of the 4th millennium. The opening up of traditional society to the outside world triggered tensions in indigenous communities as diverse groups and individuals reacted differently to such a transformation.

The south-west in the first half of the 3rd millennium

The seriousness of this impact is evident from a number of changes from *ca.* 2800/2700 BC in the Late Chalcolithic (LChal) in the south-west of the island. Totemic cruciforms were rejected, signalling a profound ideological transformation. A monochrome type of pottery replaced the previously ubiquitous RW. The new Red-and-Black Stroke Burnished ware (RB/B) is not simply a

stylistic development. It is one from which we may infer radical changes in society. First, the repertoire includes many novel pouring containers with elongated spouts that imply new drinking customs, and a proliferation of small bowls for new foodways. Second, the red and black mottled and burnished surfaces betray a new interest in pyrotechnology to effect decoration. Third, a Lemba pot with eyes in relief signals a major change in symbolism. Lastly, instead of the varied RW wares, RB/B consists of highly standardised fabrics for thin-walled vessels, suggestive of centralised production. The first three aspects are derived from earlier instances in the East Aegean/West Anatolia.¹¹

Other introductions during the LChal before the appearance of Red Polished Philia pottery (RPP) include stamp seals, faience disc beads and spurred annular pendants.¹² See below for the pendants.

Adaptations and imports in the south-west were accompanied by, or led to, instability.¹³ So many are these that Kouka is keen to see the presence of a small East Aegean/West Anatolian group.¹⁴ Kissonerga period 4A pithos house, a dominant structure where there was evidence for a remarkable concentration of economic surplus, crafting of personal adornments and possibly the production of metal objects, was deliberately burnt. The following period 4B settlement plan consisted of groups of small, homogenous buildings, probably as a reaction to previous aggrandising behaviour. Since innovations continued to be accepted and perhaps sought after in 4B, it would seem that the practice of acceptance at Kissonerga was now well established even in the absence of aggrandisers. At the same time, nearby Lemba was destroyed and not re-occupied.¹⁵

The north-west: Philia and wider interactions

We know little of the north-west of the island during the first half of the 3rd millennium, although the absence of RB/B and the continuation of RW is at odds with the west. Some RW was

imported into EB II Tarsus, so the region was also engaged in separate transmaritime connections.¹⁶ Following the South-West Cyprus/circum-Aegean links described above, migrants, possibly from the same general area, arrived in this part of the island. Novel features ascribed to these migrants include RPP, rectilinear architecture, certain domestic technologies, textile production, agricultural practices, cattle and new breeds of sheep and goat.¹⁷ They may have sought to exploit Cypriot copper for trade purposes, much as other instances of Aegean groups who set up production/trading communities in new territory, as at Ayia Photia in East Crete.¹⁸

It has been difficult to date the intrusion of what is commonly referred to as “the Philia”, and its relationship with the LChal, a major problem in Cypriot prehistory.¹⁹ Marki-Alonia (Marki), the one Philia settlement with radiocarbon dates, is regarded as atypical and late.²⁰ Hitherto, there was only one date for the start of Philia, from Kissonerga 4B when Philia material appears for the first time in the context of a LChal settlement, but it may be too early.²¹ Now, however, new dates from Period 4B indicate the presence of Philia RP pottery on Cyprus by ca. 2500 BC (Fig. 47.1).²² They are derived from charred seeds found in Buildings 204 and 376, adjacent to and in the same level as building 86, part of an architectural sequence discussed below. The Marki dates of ca. 2300–2200 BC suggest that the phase lasted some two or three centuries.

Seven of the twelve securely identified sites with RPP pottery are confined to a 30 × 40 km north-west corner of Cyprus, whereas there are only five securely identified sites in the south, west and east of the island.²³ Marki, in the centre, is a north-west outlier, well placed to access copper sources. While it has the entire complement of Philia material, the situation in the few known Southern and Western “Philia sites” is much more ambiguous.

Four tombs at Sotira- *Kaminoudhia* cemetery A yielded RPP

vessels, together with spiral earrings in two and annular pendants in one.²⁴ Similar pouring vessels and annulars (see below) were already current earlier. Indeed, the excavators remark how one of the spouted bowls displays clear connections with Chalcolithic types.²⁵ We do not know the size of the Philia phase cemetery here, so it is difficult to assess if we are dealing with a “Philia site”, a component within a larger group, or adaptive behaviour. Also, it is unlikely to represent one of the newly founded dispersed “Philia settlements” since LChal material exists here.²⁶ A disturbed tomb with three RPP vessels at Episkopi- *Bamboula* and unknown quantities of RPP at Pyrgos also attest to the presence of this pottery in the south.²⁷ Clearly, these three sites do not provide sufficient context to assess the nature of Philia presence in the south, and to label them as “Philia sites” pre-empts our ability to discern diversity on the island. More detailed evidence is available at Kissonerga.

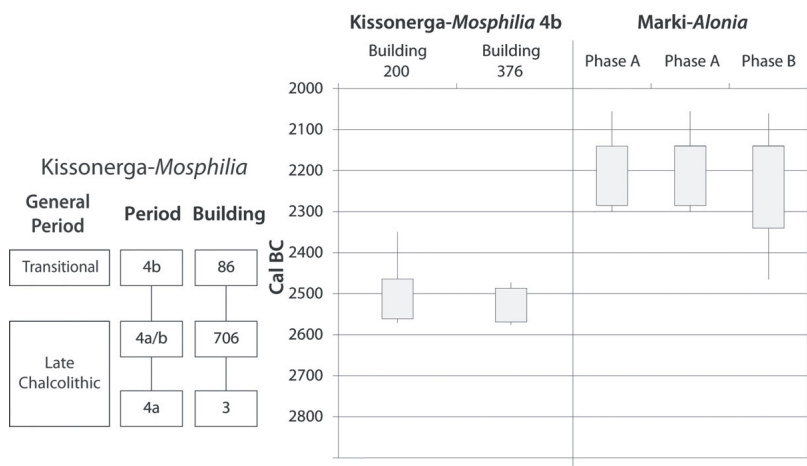


Figure 47.1. Philia phase radiocarbon dates in relation to periods at Kissonerga-Mosphilia.

On the basis of the appearance of diagnostic RPP in period 4B and in disturbed period 5 deposits, as well as other Philia traits, it is evident that Philia material accompanies traditional LChal

material here. It did not replace the latter. Closer inspection of some features of these Kissonerga periods clearly shows bi-directional processes of intra-island borrowing and adaptations, including how local inhabitants dealt with circum-Aegean ways and recently arrived newcomers. The following examples underline how different certain southern sites of the Philia phase were from Philia communities in the north-west and centre of the island.

Red Polished Philia ware

RPP in Kissonerga 4B and 5 comprises only a small proportion of total assemblages, in contrast to Marki phases A and B where Philia ceramics predominate at over 80%.²⁸ Even the pithoi in which children were buried in period 5, a mortuary practice regarded as distinctive of the Philia, were made of typical LChal wares, Coarse Painted Ware (Grave 504) and RB/B (Grave 530).²⁹ The distinctive characteristics of RPP vessels, cut-away spouts and many small bowls were especially designed for social purposes, that is, for common drinking customs, and commensal occasions. But such integrative customs were not new. As we have seen, they already existed in pre-Philia Phase Period 4A when there was a proliferation of similar pouring vessels and small thin-walled bowls, all executed in the local RB/B ware.

Dikomitou concludes that RPP (fabric I) was exported from the north-west to all sites outside that core.³⁰ Since objects transform meanings through space, their role in such a distant locality as Kissonerga may well have been closely attuned to existing practices as determined by what Bolger refers to as “differential modes of reception”.³¹ In other words, the most distinctive RPP vessels represent an additional style being made and circulated contemporaneously with RB/B in periods 4B and 5, one suited to usage in pre-existing customs of display and feasting.

Such precedence prompts wider questions about modes of integration and rejection, and of just how novel were all the later

Philia markers. For, without details of sites of the first half of the 3rd millennium in the north-west, we are at a loss to know what changes took place amongst indigenous pre-Philia communities near the Bay of Morphou and north coast regions, if innovations occurred simultaneously, and what was really introduced by the Philia. Assuming Kissonerga 4A is representative of broader trends on the island, then it is likely that pre-Philia restructuring also took place in the north-west.

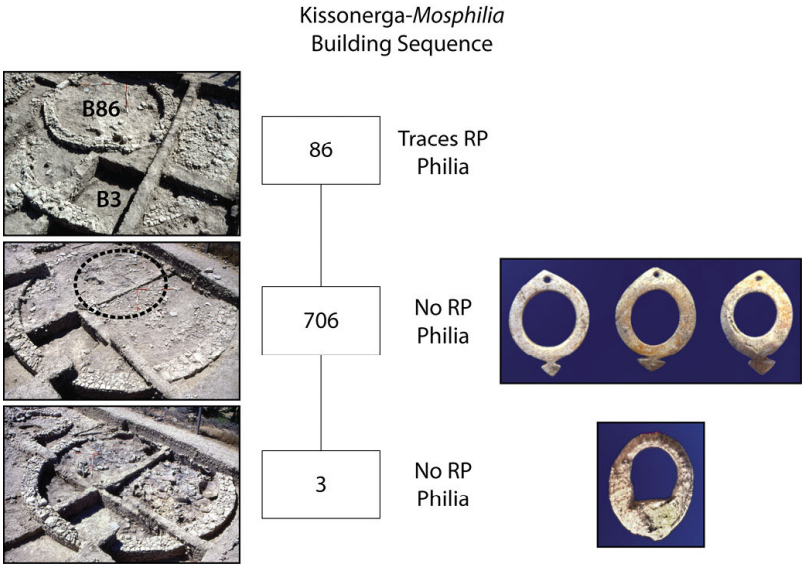


Figure 47.2. Occurrence of spurred annular pendants within a building sequence at Kissonerga-Mosphilia.

Spurred annular pendants

In referring to the already mentioned spurred annular pendants as “Philia identity markers” or Aegean/Anatolian metalworkers-merchants’ personal symbolism, scholars raise the important issue of how we fix such a fluid notion as identity during a time of instability.³² The contexts for these shell and bone annulars at Kissonerga include a series from a stratified sequence of period 4A and 4B buildings: building 3, followed by 706 and then by 86.

Figure 47.2 shows that roughouts and finished products occur in the lowest two prolific structures, associated with the local RB/B pottery and before the appearance of RPP. The latter is introduced for the first time in the level of building 86, the last in this series.³³ Precursors of the annulars occur in the Aegean and Anatolia in the 4th and 3rd millennium (Fig. 47.3).³⁴ The Cypriot version is adjusted to the medium of shell, so that the bar of circum-Aegean examples became a spur in Cyprus, and this is repeated in picrolite examples. So, as in the case of the adaptation of East Aegean/West Anatolian black and red pottery traditions, LChal groups in the south-west adapted the annular pendant type. That it was widely used in subsequent Philia sites is not in doubt, but its LChal origins imply that its meaning was context dependent rather than an exclusive signal of Philia identity in support of an island-wide system.

Spiral earring

An explicit example of amalgamations and re-interpretations of practices is the use of a spiral earring, generally considered a Philia ornament with good Anatolian parallels. As demonstrated by occurrences at Philia- *Vasiliko*, Kyra- *Kaminia*, Dhenia- *Kafkalla* and Nicosia- *Ayia Paraskevi*, they are particularly common in the north-west.³⁵ At Kissonerga it accompanied a child buried in a wall-grave, that is, as part of standard Chalcolithic single-burial mortuary practices that can be traced back at least to the MChal period.³⁶ Philia graves, on the other hand, are pit and chamber graves, usually for multiple interments in formal cemeteries.



Figure 47.3. The distribution of annular pendants in the Aegean, Anatolia and Cyprus (after Keskin 2011).

Other introductions associated with the Philia such as cattle, and so presumably cattle-drawn ploughs, as well as new textile practices, are also evident at Kissonerga. It is clear that the inhabitants were keen consumers of innovations and adapted these to local traditions. Because of disturbed conditions, it is not possible to apply a close contextual analysis of these, as in the case of the above material, but the general context demonstrates that the settlement retained many significant LChal characteristics even in period 5. Thus, traditional Chalcolithic earth ovens and stone settings persist then. Most important is the recurrence of a common hearth type, the large plastered circular hearth. Such platform hearths, approximately 1m in diameter, consistently formed the impressive central feature of circular buildings and are not found in rectilinear structures.³⁷ From this we may infer that traditional Chalcolithic roundhouses still existed in period 5. For more than a millennium that domestic space provided a *habitus* for islanders' daily lives, hence traditional Chalcolithic society in the west and elsewhere co-existed with Philia groups in the north-west and central lowlands. Introductions, especially those of economic and perhaps prestige value, were selected by indigenous villagers,

continuing the trend of adaptations that characterise sites in earlier times.

To sum up, while we should allow for quite varied interactions, data point to a much more interactive process at Kissonerga than seems to have existed in the north-west. Consumption of new materials and ideas was mediated by local interests. In other cases, they may have been contested and rejected, as in Lemba 3, contemporary with Kissonerga 4B. These examples suggest that there was no remarkably uniform, undifferentiated Philia system across most of the island. According to Frankel and Webb, it was put into place as a “tightly integrated system” for “the procurement and flow of metal”, one that tied quite different villages into a “social contract”.³⁸ While communities in the north-west and centre in proximity to copper sources and the coast may have been locked into such a network, it seems unlikely that the south and west had much to do with it. As shown by metal production earlier at Kissonerga, communities there already had their own network for copper exploitation and processing.³⁹ And, if a driving force of the Philia system was the export of copper through such north coast gateway sites as Vasilia, perhaps following on from the much earlier export of Cypriot copper to Ayia Photia mentioned above, then there was surely little or no role for communities in large parts of the island, poorly situated for routes to Vasilia. On a more general level, the evocation of a monolithic Philia settlement system and “social contract” premised on the calculated pursuit of economic goals that use optimising instrumental rationality fails to contend with the less harmonised history that formed past reality.⁴⁰ Insular interactions, therefore, did not lead to a return to the type of cohesiveness seen in the MChal. Rather, foreign contacts of the 3rd millennium seem to have led to more pronounced internal divisions.

The sequel

There was a notable decline of exotica in Cyprus in the last couple

of centuries of the 3rd millennium. Webb and Frankel have plausibly associated this with large-scale disruptions to settlement, climate and trade networks in the Near East and East Mediterranean *ca.* 2200 BC, coinciding with the end boundary of Philia phase dates at Marki.⁴¹ That site continued to be occupied, without interruption, so while the change did not signify collapse, it must have involved a contraction of the movement of copper intended for export. RPP gives way to varieties of Red Polished of the EC I and II periods, even in sites of the south and west. There is a diversity of regional wares in this period, some of them with stylistic connections that confirm the regional trajectories outlined above.

In the North-West Philia core region, the red monochrome fine RPP with well burnished surfaces and finely levigated fabrics occurs as a highly-standardised repertoire, presumably because it was made in a limited number of centres. Aside from burnishing, the most distinctive form of decoration are white-filled incisions commonly deployed in zig-zag, herringbone, chevron and multiple straight plain and fringed line patterns.⁴² The decoration is used on cutaway-spouted jugs, “mosque lamp amphorae”, small flasks and jars. After the contraction mentioned above, during the EC I–II period, such incised decoration is relatively common in the same region, but it is now much more varied. The development of highly elaborated examples of complex ritual vessels from Vounous, also with incised decoration, may be understood in the context of response to the contraction. For our purposes, we should note the continuity of many vessel types, flat bases and incised decoration in this region.

Until recently it has not been possible to trace contemporary developments in the centre and south of the island where there were few dated sites to match the prolific information from those in the north. That situation has changed thanks to the publication and analysis of several cemeteries, notably that of Psematismenos-Trelloukkas.⁴³ The dominant fabric throughout this region now is

Red Polished Mottled (Rpm) I–II, with its distinctive black mottling on exterior surfaces of virtually the entire spectrum of shapes, from bowls to cooking pots. Incised decoration is confined to the minor wares, black-topped and Brown Polished flasks.⁴⁴

The mottled surfaces of Rpm were effected by deliberate differential firing to achieve vivid, if random, contrasts between black, red and occasionally orange and brown. In their review of the affinities and possible origins of the mottling decoration technique, Giorgiou et al. reject a link with East Cretan Vasiliki ware, and point to similarities with the more controlled firing of the back-topped vessels in the north.⁴⁵ While they also mention some targeting effects in the earlier RB/B at Lemba, the larger RB/B assemblage at Kissonerga enables a closer appraisal of the RB/B–Rpm relationship (Fig. 47.4).

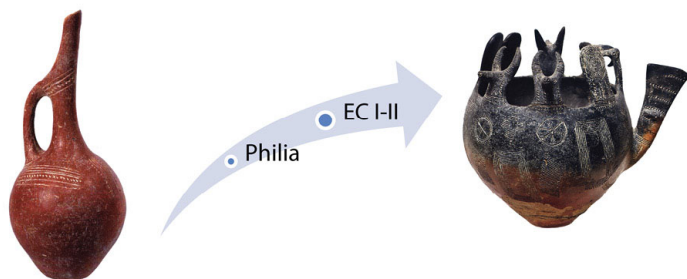
As its name suggests, RB/B surfaces commonly consist of a mixture of red and black. The colours occur irregularly on the well burnished surfaces of hard fired bowls, spouted flasks and jars, as well as sometimes on the interiors of bowls. These shapes have orange-pink to light red fabrics with distinctive blue and white grit inclusions. Both the shapes and fabrics are highly standardised.⁴⁶ The frequency of vessels with this mixture of colours confirms that the outcome was no accident but a deliberate effort to use reduction and oxidising atmospheres to create variegated surfaces. In the most striking Kissonerga examples, the contrasts are as vivid as those on later Psematismenos- *Trelloukkas* Rpm (see Fig. 47.4 bottom left). Clearly, potters at both sites consciously used pyrotechnology to create similar polychromatic surfaces. Although we do not know the terminal date of the use of RB/B, and hence the chronological proximity of the two wares, strong similarities of practice and technique furnish grounds for arguing that the antecedents of the southern Rpm I–II lie in the LChal, especially of South-West Cyprus.

Set in its wider context, the hypothesis for LChal – EC I–II continuity in the south can be juxtaposed to the clear evidence for

continuity of Philia – EC I–II in the north. Starting at least from the mid-3rd millennium, therefore, two general style zones emerged on the island, ones we may characterise as incised in the north, and red and black in the south (Fig. 47.5). There were undoubted cross influences and exchanges between the two, but the division highlights the growth of regionalism on the island, a process that started at the end of the MChal and became more clear-cut in the middle of the 3rd millennium.⁴⁷ How deeply divided the two regions were may be seen in the occurrence of elaborate burials in the north, compared to their much simpler counterparts in the south.⁴⁸ It also exists in the concentration of weapons and other metals in the north, and their relative scarcity in the south.⁴⁹ At a socio-political level, this suggests that the stylistic differences we see in pottery assemblages are symptomatic of much deeper contrasts in society.

To extrapolate on the nature of the social divisions from one piece of evidence, it may be recalled that at Kissonerga the pithos house, a focus for centralising the administration of production and hence labour, was deliberately burnt with loss of life. Following that motivated destruction, the mid-3rd millennium settlement in period 4B was re-organised into groups of equal-sized houses with no one structure or group the repository of exceptional goods and wealth. It seems clear that aggrandising behaviour was actively discouraged with the result that a more egalitarian community was re-established.⁵⁰ Based on the still slender evidence of continuity in ceramic preferences, we may infer that the later modest tombs in the south, compared to their northern counterparts, are consistent with the trajectory seen at Kissonerga. Such a model for the south and west would help to explain the kind of regional divisions evident in the later 3rd millennium, ones that were deeply rooted in the varied responses to stimuli from external contacts and to the intrusion of newcomers from the earlier and especially the mid 3rd millennium.

North



South

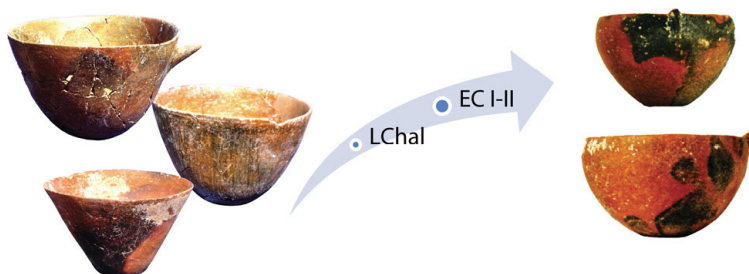


Figure 47.4. Development trajectories: Philia – Early Cypriot I-II pottery with incised decoration in the north, LChal – EC I-II pottery with variegated red and black surfaces in the south.

Conclusions

Adopting a long-term view of developments allows us to shift the focus on “transition” from the tendency to isolate change as an event to one of nuanced process. With specific regard to Cyprus, where the profound changes of the 3rd millennium have been largely considered in terms of a posited focal migration from Anatolia and the role of migrants, it fosters a perspective that takes fuller account of indigenous people and their interaction with new materials, ideas and incomers (Fig. 47.6). Applying this longer perspective, we see that homogenous Cypriot MChal society started to fragment *ca.* 3000 BC with the intensification of consumption for display. Increased demand for special items and exotics resulted in a more maritime-oriented society, one in which

local produce, copper, may even have been exported to Crete in EM I.51

By the mid-3rd millennium two major, distinct foreign interactions can be identified: adaptations of Aegean and other stimuli by LChal communities in the south-west, and multi-faceted adoptions and inward migration in the Philia north-west. The introduction and acceptance or rejection of extra-island ideas and material led to a more complete breakdown of the earlier insular cohesion. The impact of foreign contacts, therefore, proved highly destabilising and divisive. In their focus on the introduction of economic and other Philia features that were so influential in structuring the Bronze Age of Cyprus, scholars have overlooked another structuring impact, namely, the emergence of regional entities where previously the human landscape of Cyprus was much more homogenous.

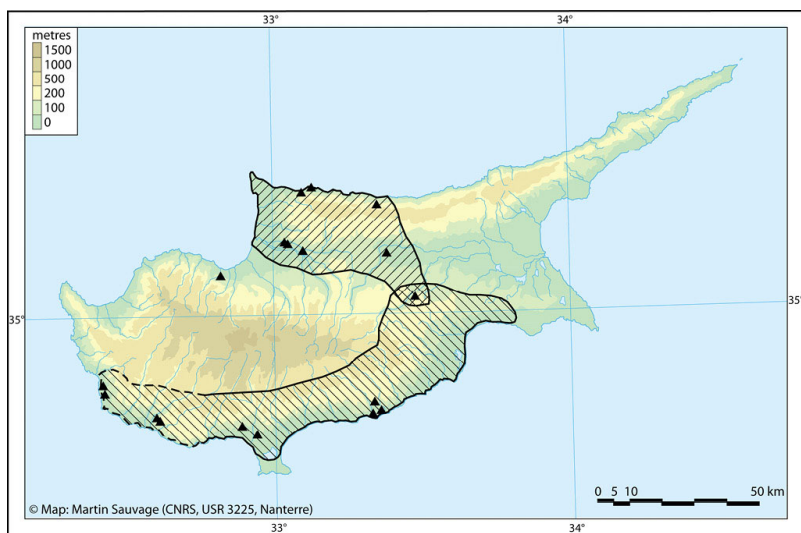


Figure 47.5. Mid- and later 3rd millennium regions of Cyprus: variegated red and black pottery of the south, incised in the NW.

At least two regional identities emerged, each with their own characteristics. The south, west and centre, a region we defined archaeologically by red and black variegated pottery, is

characterised by an adaptive dynamic that led to the persistence of an egalitarian society. In contrast, the north-west, a region distinguished archaeologically by an array of traits including white-filled incised pottery, and where migration played such a decisive role, shows signs of a more competitive, ranked society. A division into two regions undoubtedly oversimplifies what was a more fluid situation. For example, inhabitants of Marki A–B were engaged with the northern Philia system, but in EC I–II the community became part of the southern red and black region as defined above. And this is no coincidence. By about 2400 BC, utilising Cypriot copper, the Philia system was keyed into a maritime interaction network that linked it with the circum-Aegean world and the east.⁵² But reliance on fickle trade markets resulted in a boom/bust economy and to the rapid demise of the Philia phenomenon. Elsewhere, continuity of the adaptive dynamic not only prevailed but, as we see at Marki, expanded. And even if tremendous changes had taken place in all of Cypriot society by then, the north-west long retained its special character, as is evident in its role in the east–west divide at the start of the Late Bronze Age.⁵³

Although there are manifest differences, the general trajectory of 3rd millennium culture contact amongst the islands of the Aegean bears similarities to developments in Cyprus. According to Broodbank, “islanders’ indirect encounters with outlying elements of emergent world-systems may also have started to alter things prior to the first intensive contacts ... that were so utterly to transform indigenous ways of life.”⁵⁴ The broad regionalisation of Cyprus into two disparate socio-political systems was one, distinctive example of such transformations.

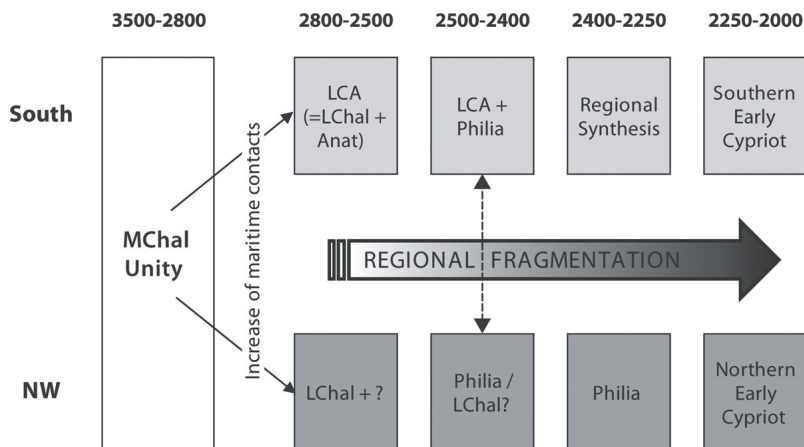


Figure 47.6. Outline of the development of regionalism on Cyprus coincident with varied types of extra-island contacts.

Notes

1 Acknowledgements: I am grateful to D. Bolger and L. Crewe for helpful comments and advice, and to G. Giorgiou and S. Hadjisavvas for images used in Fig. 47.4, M. Sauvage for the base map of Fig. 47.5. Illustrations: H. Paraskeva. The School of History, Classics and Archaeology, University of Edinburgh, provided generous support to attend the rewarding “Transitions” conference in Athens.

2 Peltenburg 2013, 339–41.

3 Papaconstantinou 2013.

4 Bolger 1991.

5 I had previously referred to the possibility of a north–south split on the basis of the incidence of cruciform figurines. While it is true that there are fewer in the north than in the south-west, Bolger notes that this may be the result of the virtual absence of research in the north since 1974. See Peltenburg 2011, 6–7; Bolger 2013.

6 Examples are widely published, e.g. Morris 1985, 122–32 for illustrations.

7 See Peltenburg forthcoming.

8 Peltenburg *et al.* 1991.

9 Stos-Gale and Gale 2003, 91–2, tab. 5.

10 *cf.* top right image in <http://faculty-web.at.northwestern.edu/anthropology/stein/HNfindsEB-I.html>.

11 See Peltenburg 2007; Bolger 2007. They may have extended to Central Cyprus: see note 15. For a broader context for the last feature, see Bolger *et al.* 2014.

12 Peltenburg *et al.* 1998, 256–8.

13 Voskos (this volume) emphasises household competition in undermining traditional social organisation.

14 Kouka 2009a.

15 For the argument that these changes concern contests for different forms of authority see Peltenburg 1993.

16 Mellink 1991, 170, figs 2, 3. RW also continues at the transitional MChal/LChal site of Politiko- *Kokkinorotsos* in Central Cyprus. Some Anatolian ceramic features seen clearly in the south-west may have reached here; see Webb *et al.* 2009.

17 For a survey see Webb and Frankel 1999. They have consistently argued for this assemblage as evidence for migration from Anatolia, e.g. Webb and Frankel 2007. Kouka (2009a), on the other hand, has only Anatolian elites. Many of these features have also been treated as evidence of cultural and demographic mixtures or hybridisation. See Knapp 2013a, 260–77 and references therein.

18 cf. Broodbank 2000, 299–304.

19 For the character of the Philia see Webb and Frankel 1999; for dating see Peltenburg *et al.* 2013, 336; Manning 2013.

20 Frankel and Webb 2006, 306.

21 Apart from its wide range, the Kissonerga period 4B date, BM-2527, is so alike the majority of 4A dates that it may be from re-deposited material. The period 5 date has been shown to be insecure: Peltenburg *et al.* 2013, 324, 336.

22 This is slightly earlier than posited in Peltenburg *et al.* 2013, 336, and in line with Manning's proposal that it started "possibly even in the late 26th century BC" (Manning 2013, 13). A recent re-dating to 2900/2800 BC is largely based on the assumption that Cypriot copper at EB II Pella and Beth Shan could only occur during the Philia EC (Bourke 2014). This overlooks the internal radiometric evidence from Cyprus, including that presented above, our ignorance of what was happening in the NW of the island in the earlier 3rd millennium, and it synchronises the Vounous jar with an early date for this Syrian type which in fact has a lengthy history down to the very end of the 3rd millennium (Sconzo 2015, 132, pl.

26, type 112).

23 Frankel and Webb 2006, 306. For the additional site of Kissonerga-Skalia, see Crewe 2015. Uncertain identifications, such as Yialia, are excluded here.

24 Swiny *et al.* 2003, 105–32; Webb and Frankel 1999, 11.

25 Swiny *et al.* 2003, 107.

26 For the model of dispersed, small new Philia foundations, see, for example, Frankel and Webb 2004, 7. The model of small founder settlements serves to underpin arguments for the need for close interaction and uniformity in order to sustain viable populations. However, Philia material in the recent excavations at Kissonerga-Skalia suggests that Kissonerga, at least, was some 3.7 ha, assuming all Philia ceramics there are contemporary: see Crewe *et al.* 2008; Crewe 2015. Chalcolithic pottery at Sotira-Kaminoudhia is treated in Swiny *et al.* 2003, 52–3, 72–3, 205–10. The presence of RB/B indicates LChal occupation.

27 Webb and Frankel 1999, 8–9; Webb 2013, 63, fig. 4.

28 Frankel and Webb 2006, 90, text fig. 4.2.

29 Bolger 2007, 179.

30 Dikomitou 2011.

31 Bolger 2013, 2.

32 Frankel and Webb 2004, 7.

33 In continuing to refer to these examples at Kissonerga as “Philia type pendants”, Webb and Frankel (2011, 33) overlook this clear stratigraphic evidence.

34 Kouka 2009a; Keskin 2011.

35 For distribution see Webb and Frankel 1999.

36 See Peltenburg forthcoming.

37 For these features in period 5, see Peltenburg *et al.* 1998, 53, and for the platform hearth, 239–40. Roundhouses, or at least curvilinear architecture, persist into the EC period at Prasteio Mesorotsos; see McCarthy 2013, 76.

38 Most recently Webb and Frankel 2013, 60–2, 76.

39 Peltenburg forthcoming.

40 Bernbeck and Pollock (2002, 182–3) treat these approaches in relation to modern scholarship dealing with the Uruk period in Mesopotamia, but it is widely applicable.

41 Webb and Frankel 2013, 62–3; Manning 2014, 25–9.

- 42 Bolger and Webb 2013, 60–1.
- 43 Georgiou *et al.* 2011.
- 44 Bolger and Webb 2013, 62.
- 45 Georgiou *et al.* 2011, 282–8.
- 46 Bolger 2007.
- 47 For this and what follows see Peltenburg 1996, 27; Webb and Frankel 2013, 65–7, figs 2–6 for the EC I–II ceramic contrast between north and south. Manning (2014, 27–9) develops the argument of a division between a wetter north and more arid rest of Cyprus in the late 3rd millennium. For EC I–II links between the regions, see, for example, Crewe 2015.
- 48 Keswani 2013, 188–91 for the distinctions during the Philia phase, and 199–204 for EC I–II.
- 49 Keswani 2013, 193–7, 207–11.
- 50 For changes in response to social and environmental stresses, with breakdown of larger aggregates by fission, see Peltenburg 1993.
- 51 For dating of Ayia Photia see Day *et al.* 1998, 136.
- 52 Webb *et al.* 2006.
- 53 e.g. Merrillees 1971.
- 54 Broodbank 2000, 286.

Rethinking the “Cypriot paradox”: Socio-economic change in Late Neolithic and Chalcolithic Cyprus

*Ioannis Voskos*¹

Introduction

This study is a contribution to the discussion of socio-cultural change and the emergence of social complexity in prehistoric Cyprus. In particular, by reassessing various sets of socio-economic data, I attempt to approach cultural change from an internally-driven perspective focusing on Ceramic Neolithic and Chalcolithic periods. The ideas of attributing socio-cultural change to internal developments² and seeking in “explicitly social terms”³ are not new in Cypriot archaeology. However, many researchers, based on the apparent discontinuities of the archaeological record and also on some novel traits that appear to come from the mainland, insist on relying upon external forces to explain change.

Instead of highlighting intrusive elements, in this paper I argue that a focus on internal processes provides a better understanding and sheds light on the gradual integration of the island into wider Eastern Mediterranean networks. Following the clarification of the term “Cypriot paradox” there is a short discussion on socio-cultural change and the problems that Cypriot prehistory poses for explorations of this subject. Then, by employing a holistic

approach of prehistoric Cypriot socio-economic structures, it is suggested that the gradual decline of egalitarian societies and increasing household competition promoted external contact resulting in the adoption of novel behavioural practices and thus forming a powerful factor of socio-cultural change.

The “Cypriot paradox”

The Ceramic Neolithic and Early Chalcolithic periods in Cyprus are characterised by the existence of small village communities with few signs of social complexity and economic intensification. The apparent persistence of simple socio-economic structures has been described as “a bizarre and insular anachronism”.⁴ Similarly, A. Wasse considers this period as a “long era of anachronistic hunting economies”.⁵ This fact is in stark contrast to contemporary developments in the Aegean, coastal Anatolia and the Levant, where intensified contact led to the transmission of new ideas and practices as well as to the establishment of interaction spheres and exchange networks. The long-lasting anachronistic local lifeway described here as “the Cypriot paradox” seems to have been partly undermined during the Middle and especially the Late Chalcolithic periods when Cypriot society underwent a series of socio-cultural transformations. Nevertheless, the observable innovative features in the archaeological record do not include certain crucial technological developments such as full adoption of metallurgy, rectilinear architecture or plough cultivation.

Common explanations concerning the absence of these traits until at least the beginning of the Bronze Age revolve around issues of insularity and socio-cultural isolation. Indeed, Cyprus was often regarded as *terra incognita* before the advent of the Bronze Age. Held, for instance, described this situation with the term “cultural retardation”.⁶ However, the notion of islands as “cultural backwaters” and as ideal cases for the study of cultural change⁷ has now been challenged and modern studies view insularity and

geographic boundaries as socially constructed concepts.⁸ Even though the insular environment of Cyprus promotes a degree of isolation due to its physical remoteness, recent archaeological data suggest that differing levels of contact with nearby mainland cultures were always existent.⁹ Thus, the “Cypriot paradox” cannot be properly explained by ambiguous and one-sided terms such as “cultural retardation.”

Socio-economic change and Cypriot prehistory

Socio-economic and cultural change has formed one of the most controversial subjects in archaeological interpretations since the end of 19th century. Cultural diffusion and invasions were the most common causes of change in culture-historical approaches. External factors were also favoured by environmental determinist approaches which attributed change to climatic conditions, human adaptation to their immediate environment and natural disasters. It was only after the mid-20th century when the Marxist paradigm and functionalist approaches of New Archaeology added a different perspective, marking a trend towards internal processes of change and also an increasing emphasis on materialism. Modern approaches to the subject, such as post-processualism, tend to focus on the invisible components of the cultural phenomenon, whereas Neomarxists and structural Marxists argue about a dialectical relationship between economic “base” and the “superstructure” supporting a balanced investigation of socio-economic change via the study of production relations.¹⁰

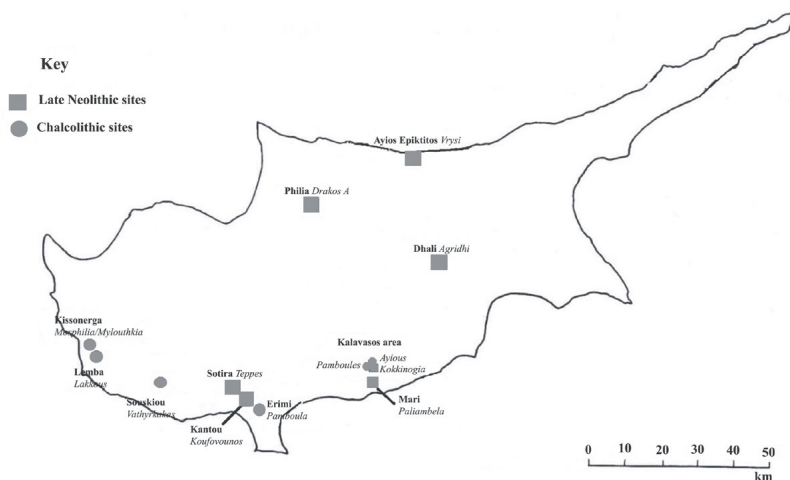


Figure 48.1. Map of Cyprus with the main Ceramic Neolithic and Chalcolithic excavated sites.

The growing interest in internal processes of change, the upgraded role of human agency and the symbolic/ideological component of cultural phenomena still seem to be largely ignored in most studies of Cypriot prehistory. Concerning prehistoric Cypriot economy, Knapp noted long ago that scholars never really participated in the substantivist/formalist controversy and ignored the renewed interest in the Marxist paradigm.¹¹

The problem is exacerbated due to the characteristic discontinuities and constant “site dislocations” of the Cypriot prehistoric record. Moreover, there were three large chronological gaps (Fig. 48.2) that obscured any past attempts to approach socio-economic change.¹² Common interpretations of the last two gaps that fall into the chronological horizon of this study included mainly ideas of abandonment due to natural disasters and subsequent recolonisation of the island.¹³ For instance, catastrophic earthquakes and sudden climatic change were the most common causes for the demise of Aceramic¹⁴ and Ceramic Neolithic cultures, resulting in island-wide abandonment or at least in sharp decreases in population numbers. Similarly, the puzzling appearance of intrusive elements in the material culture

of Ceramic Neolithic and Philia culture assemblages led many researchers to support major colonisation/immigration episodes.¹⁵ Apparently, external forces of socio-cultural change still dominate the explanations in Cypriot prehistory and protohistory.

cal BC	Chronological periods	
10000	Epi-Palaeolithic (Akrotiri phase)	
gap?	Cypro-PPNA Cypro-EPPNB Cypro-MPPNB Cypro-EPPNB Early Aceramic Neolithic Middle Aceramic Neolithic Late Aceramic Neolithic ("Khirkitian Culture")	
8000		
7000		
6000		
gap?		
4000	Ceramic Neolithic ("Sotiran Culture")	
gap?	Early Chalcolithic Middle Chalcolithic Late Chalcolithic	
3500		
2800/2700		
2500/2400		
	Early Bronze Age ("Philia Culture")	

Figure 48.2. Chronological chart and “gaps” of the early Cypriot prehistory.

An alternative suggestion: A holistic approach

S. Swiny attempted to explain the appearance of rectilinear architecture in Cyprus based on a holistic examination of economy and society during the prehistoric Bronze Age.¹⁶ More recently, a

kind of holistic approach was employed by J. Clarke in her study of the 6th–4th millennium BC,¹⁷ even though many critical aspects such as ideological/symbolic practices and funerary data are absent. No doubt, the “holistic view” of socio-economic data is not new in Cypriot archaeology. However, Clarke is right to note that “interpretations of prehistoric social practices continue to be constructed on the basis of the study of individual artefact assemblages” and also that “it is still rare to find integrated studies employed beyond archaeological site and survey reports”.¹⁸

In view of the above, an alternative perspective is suggested here based on a holistic approach of socio-economic structures in Cyprus between the 5th and 3rd millennia BC. This approach includes the diachronic investigation of households and communities via:

1. the study of the subsistence economy, storage practices/technology and agricultural surplus management;
2. the spatial distribution of storage, cooking, food processing and other installations in domestic and communal contexts;¹⁹
3. the study of patterned behaviour of social groups stemming from their everyday habitual actions;
4. the recording of data connected to settlement structure and the general organisation/use of space; and
5. an attempt to approach the social connotations of economic activities of given prehistoric social groups in Cyprus.

A parallel investigation on the one hand of the wider implications of economic data, and on the other of the social contexts that created them provides useful insights into the cultural phenomenon as a whole and hence the processes that promoted socio-cultural transformations. Detailed analysis of these subjects in Neolithic and Chalcolithic Cyprus was attempted elsewhere.²⁰ What follows here is a brief discussion of some of these points.

Subsistence economy: An anachronistic and flexible

model

According to recent data, agropastoral groups settled in Cyprus during the 10th–9th millennia BC.²¹ Following an Epipalaeolithic/Initial Aceramic Neolithic focus on pig-herding and a later attempt to introduce cattle, social groups relied more and more on deer hunting. A. Wasse argued that agropastoralism failed to replace hunting and gathering, and this resulted in the de-intensification of economy and the consolidation of a “frozen” model similar to the transitional mainland early PPNB.²² Paradoxically, Ceramic Neolithic and Early Chalcolithic zooarchaeological assemblages show a continuous dependence on hunted animals concerning meat supply strategies.²³

Based on these data and also on the ostensible absence of agricultural surpluses, J. Clarke suggested that Ceramic Neolithic groups adopted a mobile lifeway utilising seasonally a series of semi-permanent settlements and following herds of deer and other non-domesticated animals.²⁴

There are some weak points in this notion. A full study of subsistence strategies and storage practices showed that at least Kantou *Kouphovounos*, Ayios Epiktitos *Vrysi* and Sotira *Teppes* were permanent settlements with many indications of agropastoral activities and small or possibly large agricultural surpluses.²⁵ Figure 48.3 suggests a balanced situation concerning the percentages of hunted and domesticated animals in these three settlements between 4400–4100/4000 BC.²⁶ Ceramic Neolithic archaeobotanical data prove the existence of crop cultivation, while at the same time the abundance of food-processing installations, cutting tools and sickle blades also point to intensive agricultural activities. What is more, the recognition of all Aceramic archaeobotanical varieties with only a few additions suggests continuity and selective adoption of new crops (Table 48.1).

On the other hand, Clarke’s model might be applied for the earliest and latest part of Ceramic Neolithic period. The sites of

Dhali *Agridhi* and Philia *Drakos A'* (phase 1), squatter activity at Kantou (phase 5) and Sotira (phase 4) and the existence of more sites with negative features (pits and large hollows) and ephemeral architectural structures in the Vasilikos Valley²⁷ reveal a semi-sedentary lifeway with intensive hunting/gathering subsistence strategies. Judging by Kalavassos *Ayious*, Kissonerga *Mylothkia* (period 2) and Kissonerga *Mosphilia* (period 2), this mobile lifestyle survived until at least the end of the Early Chalcolithic period, while at the same time the abundance of large bell-shaped storage pits suggests that crop cultivation was never halted. During the Early Chalcolithic, hunted animals dominate the zooarchaeological assemblages (Fig. 48.3), the numbers of scrapers and other similar chipped stone tools increase, whereas the number of sickles is considerably lower.

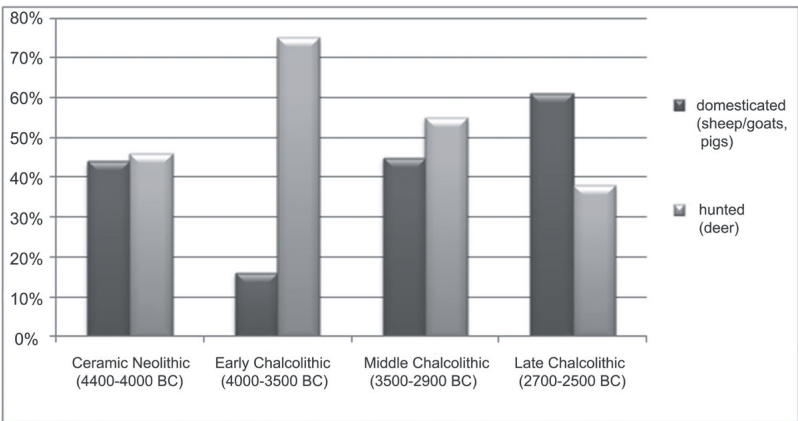


Figure 48.3. Average percentages of domesticated and hunted animals in Cyprus during the Ceramic Neolithic and Chalcolithic periods.

Table 48.1. Basic identified archaeobotanical varieties from Neolithic and Chalcolithic settlements.

<i>Product</i>	<i>Aceramic Neolithic</i>	<i>Ceramic Neolithic</i>	<i>Chalcolithic</i>
Emmer/Einkorn	Y	Y	Y
Bread wheat		Y	Y
Barley	Y	Y	Y
Rye		Y	Y
Oats		Y	Y
Lentils	Y	Y	Y
Pea	Y	Y	?
Chickpea		Y	Y
Vetch		Y	Y
Nuts, fig	Y	Y	Y
Olive, grape	Y	Y	Y

In many Chalcolithic sites such as Erimi *Pamboula*, Kissonerga *Mylothkia* and Lemba *Lakkous* there are traces of the final transition to permanent architectural structures with stone foundations and the return to sedentism during the Middle Chalcolithic period. The apparent increase in the percentages of domesticates and the rich archaeobotanical data mark a shift towards an agricultural economic base and the gradual reliance on more controllable economic practices than hunting. This process would be completed in the Late Chalcolithic period when, for the first time in Cypriot prehistory, domesticates clearly outnumber hunted animals in meat supply strategies (Fig. 48.3).

Storage practices and surplus management

Ceramic Neolithic households normally contain small storage bins or more often pot settings and caches of tools and raw materials. Only a few types of red/brown monochrome hole-mouth jars hardly exceeding the capacity of 25–30 litres are partly connected with short-term and direct storage practices. What follows is the

fact that at least in the 5th millennium BC, there are no large surpluses and social groups “consume edibles soon after their acquisition”.²⁸ Contrary to this assumption, P. Halstead argued in the past that all food-producing groups seem to maintain a “normal surplus” as a result of a successful crop.²⁹ Thus, there is a possibility that the excavated parts of Ceramic Neolithic Ayios Epiktitos *Vrysi* and Sotira *Teppes* simply did not include outdoor storage facilities.

An open-air area near the eastern edge of the excavated part at Kantou (phase 3) contains the remnants of a series of large pits that seem to be connected with large-scale storage purposes.³⁰ A similar but smaller area was partly excavated at Kantou phase 4, albeit with the important addition of a wall that restricted its access. Many pits are reported from Sotira *Teppes*,³¹ but their ambiguous nature and tentative stratigraphic equations do not leave enough space for their secure characterisation as storage pits. Nevertheless, the subsequent standardisation and formalisation of bell-shaped storage pits during the Early Chalcolithic period suggests on the one hand that, in fact, there are traces of surpluses in both periods and on the other that this type of large-scale storage facility might have its roots well into the Ceramic Neolithic period.

Intensification of agricultural production is a basic characteristic of the Middle Chalcolithic period. At least two outdoor storage areas with pits containing large vessels were excavated at Lemba period 2. The large capacity of these pits,³² free access to storage installations and the general absence of inequalities at the household level suggest communal management of the stored products. The situation is different in the Late Chalcolithic period. Even though storage remained a centralised practice, pits at Lemba disappear and large storage vessels (pithoi) are placed in fixed positions inside buildings. The explicit privatisation of stored products coincides with the symbolic and natural isolation of households, which tend to attain self-

sufficiency.

The “Pithos House” at Kissonerga *Mosphilia* period 4A marks the climax of centralised storage and emerging inequalities. This building contained at least 37 storage vessels with a total capacity of some 4000 litres, large numbers of stone tools, a variety of ornaments and other goods. Various practices such as metallurgy, tool production and possibly olive oil production are also indicated both in the “Pithos House” and its successor Building 706. What follows is the explicit attempt by the “owners” or administrators of the building to control labour and the means of production. The parallel existence of tokens, stamp seals and prized commodities such as faience beads and spurred annular pendants marks on the one hand redistributive practices and on the other restricted access to power and wealth.

Households and everyday habitual action

The tentative and partly problematic term “household” has become fully integrated in archaeological investigations during recent decades.³³ In prehistoric Cypriot contexts, many scholars dealing with household level analysis seem to equate households with single architectural units.³⁴ E. Peltenburg worked on this subject in depth and suggested an ideal house floor plan for both the Late Neolithic³⁵ and Chalcolithic periods.³⁶ Subsequent studies, however, emphasised the complex abandonment and post-depositional processes that partly distort the resulting picture.³⁷ In this study, a broad conceptual meaning is adopted and household is considered as the basic productive and consuming unit of a community. Examination of households includes careful recording of *in situ* finds and features in order to restore indoor/outdoor activities and individual/group patterned behaviours. Equally important in this context are data concerning the size and function of architectural units and generally the organisation and use of space in buildings and outdoor areas at Neolithic and Chalcolithic settlements.

Very few data are available from sites dated early in the 5th millennium BC. This initial phase of the Ceramic Neolithic yielded only a few semi-permanent camps (Dhali *Agridhi*, Philia *Drakos A'*) with no sign of solid architecture and thus building/floor plans. On the other hand, excavations at Early Chalcolithic Kalavassos *Ayious* and Kissonerga *Mylouthkia* revealed remnants of ephemeral and semi-subterranean circular/oval huts possibly with light timber-framed and *pisé* superstructures.³⁸ Concerning domestic activities, decoration on Red-on-White pottery declines steadily and there are only minor signs of craft specialisation and material expressions of ideology. The fact that buildings were rather small and also the reciprocal character of various outdoor activities such as storage and food-processing suggest the existence of mutually interdependent extensive households and communal management of surplus and other resources.

The situation is markedly different in the later part of the Ceramic Neolithic period. Habitation patterns change and settlements with solid monocellular architectural units and circular or sub-rectangular plans appear. Following Phases 1-2 where there are small circular buildings, Phase 3 at Ceramic Neolithic Kantou *Kouphovounos* is characterised by the existence of large rectangular buildings with rounded corners. The decreasing percentage of outdoor areas at Kantou and Sotira and also the apparent concentration of food-processing installations and food preparation activities inside buildings or in the defined space of individual households, mark a period of emerging household isolation and resource privatisation. Individual and collective identities were expressed in the production and acquisition of personal ornaments and mainly in pottery decoration.³⁹ This material class functioned as a symbol of specific households and has also been associated with competitive feasting,⁴⁰ prestige acquisition via hospitality⁴¹ and social storage.⁴² A parallel increase in the number of stored tool caches and finely constructed cutting tools is possibly related to emerging differentiation via the

possession of prized objects.⁴³

Strikingly similar is the situation observed after the mid-4th millennium BC. Following a nearly 500-year-long return to simple socio-economic structures,⁴⁴ a different cultural ethos emerged known as the Middle Chalcolithic. The appearance of large curvilinear buildings whose interior was segmented by low partition ridges at Lemba and Kissonerga *Mosphilia* coincides with a renewed emphasis on individual identities and households. Standardised segmentation of buildings was a socially dictated phenomenon that reflected “changing social and economic organisation at the household level”.⁴⁵ It is not a coincidence that the so-called “ridge buildings” appear in a period of increasing household competition corresponding partly to the period of Ceramic Neolithic rectangular buildings with rounded corners.

More similar traits with the latter part of the Ceramic Neolithic are observable in various aspects of material culture, ideology and settlement structures. For instance, complex decorative patterns reappear on Red-on-White pottery, while at the same time individuality is also expressed in the flourishing numbers of picrolite ornaments, a symbolically charged material with a long history in Cyprus. Conscious appropriation of buildings and facilities⁴⁶ and direct equation of burials with specific households⁴⁷ suggest the gradual rise of property rights. The existence of the Middle Chalcolithic cemeteries at Souskiou *Vathyrkakas*⁴⁸ and *Laona* with dozens of rich burials points to the same direction and reveals another field of social competition and status display.

On the other hand, there are no clear signs to support the development of a stratified society yet. Ground and chipped-stone tool production remained by and large a domestic craft and there are only meagre indications for intra-island exchange networks and the circulation of finished tools and ornaments. Picrolite, for instance, was easily accessible in the Kouris and Diarizos rivers and the abundant recovery of debris and partly finished objects in

nearly all Late Neolithic and Chalcolithic settlements is not in accordance with bulk production strategies and craft specialists. A possible exception might be Souskiou *Laona* settlement since, according to preliminary results presented by its excavator E. Peltenburg, there are indications that support specialised production of picrolite objects. However, the appearance of pithoi which require specific pyrotechnological skills and only a few traces of specialised production – e.g. the possible pendant workshop at *Mosphilia*⁴⁹ – are not enough to alter significantly the likelihood of a domestic mode of production within Middle Chalcolithic households.

It is not clear whether there is a hiatus of 200 years or not in the occupations at Lemba and Kissonerga *Mosphilia*⁵⁰ but in any case the Late Chalcolithic period begins with major socio-cultural modifications and disruptions. The large “ridge buildings” were eventually replaced by clusters of small buildings while Red-on-White pottery was superseded by monochrome wares such as Red and Black-Stroke Burnished. The transformations in pottery production⁵¹ and consumption mark the end of the symbolic character of decorated pottery while the appearance of new vessel types suggests novel eating/drinking trends. The overall collapse of the Middle Chalcolithic ideological component is manifested by the disappearance of picrolite objects and institutionalised ritual along with the ceremonial area at *Mosphilia*. At Lemba period 3, the large outdoor storage areas also disappear while the size of buildings was dramatically increased in order to include storage and food-processing facilities. In view of the above, Late Chalcolithic cultural traits reflect a general trend towards increased household isolation and privatisation of storage, cooking and food-processing facilities.

Discussion: Internal oppositions, social cohesion and socio-cultural change

Many researchers noted in the past the existence of internal

oppositions that promote change within social structures.⁵² K. Kotsakis, for instance, referred to the main opposition observable in any given socio-economic formation arguing that it lies “between individuals and community, that is between individual production and collective appropriation.”⁵³ Successful overcoming of this opposition secures social reproduction, whereas unbalanced production relations and unequal access to power and wealth threaten social cohesion and the egalitarian character of small communities in the long run.

As demonstrated above, the period between 5000-2500 BC is characterised by constant realignment of subsistence strategies and habitation patterns. Vital for the survival of prehistoric Cypriot groups is a flexible dual subsistence model with mixed agropastoralist and hunting/gathering strategies. The main characteristic of this model is, no doubt, the frequent alternation of food-producing and hunting/gathering practices as the core of economic activity. Heavy reliance on hunting/gathering coincides with a mobile lifeway that indicates residence in semi-permanent camps as well as mutually interdependent groups. During the periods that this way of life was predominant⁵⁴ there are only minor signs of ownership, craft specialisation and production beyond the subsistence needs. Emphasis on the collective and complete absence of inequalities suggests small egalitarian societies and simple socio-economic structures based on reciprocity and food-sharing. This long-lasting anachronism forms the continuation of a local lifeway that appeared in Cyprus largely unvaried since the 8th millennium BC.

On the other hand, there are at least three intermittent periods⁵⁵ characterised by settlement nucleation, population growth and production intensification. The latter is connected to an apparent shift of social rationale from collective to individual, from sharing to hoarding.⁵⁶ Part of this transformation was the new economic orientation towards more controllable strategies⁵⁷ and also the emphatic emergence of individual households as the

basic unit of the segmented society. The question that arises is how these communities were securing social cohesion in a period of escalating household competition.

Given the explicit signs of privatisation and competition,⁵⁸ the answer lies in the development of socially integrated mechanisms that promoted stability. Food-sharing in symbolically charged vessels, institutionalised feasts where agricultural surplus was consumed, typological homogeneity and common ideological beliefs are only a few of these levelling mechanisms that appear in small-scale societies in order to halt asymmetrical power relations and prevent stratification or community fission.⁵⁹ Building 3 at Kantou⁶⁰ and the adjacent pit area, the outdoor store areas and Building 1 at Lemba with its decorated storage pots and the statuette of “Lemba’s Lady” and also the Red Building and ceremonial area at Kissonerga *Mosphilia* might have functioned as focal points for the performance of communal gatherings, feastings and other institutionalised rituals.

Discussing specifically celebratory meals, S. Valamoti noted that they “are categorised according to what is being pursued, e.g. solidarity between the members of a community or emphasis on someone’s authority”.⁶¹ Peltenburg’s assumption concerning the symbolic use of the ceremonial area at *Mosphilia* is closer to the second case.⁶² However, the general absence of inequalities at the household level is not in accordance with the notion of emerging power groups being able to control labour and manipulate these buildings and outdoor areas in order to reaffirm their status. Certainly the ability to provide food for the whole community in many occasions functioned as an opportunity for social display. Nevertheless, in my opinion, the primary purpose of the ceremonial area and other equivalent buildings at Kantou and Lemba was to highlight communal solidarity and hence their use was not restricted to any emerging elite groups.

Evidently, the levelling mechanisms were not effective enough to prevent social stress and collapse in the long run. Failed

realignment of production relations and, as a consequence, internal tension might have led to the demise of Late Aceramic and Ceramic Neolithic cultures. Community fission and squatter activity were probably the first steps before regional collapse of permanent settlements. At Kantou, for example, the large buildings of phase 3 were replaced by clusters of small circular buildings (phase 4), whereas there is an apparent reduction in the population number before phase 5 and final abandonment. What needs to be emphasised here is that in both cases there is a patterned return to simpler socio-economic structures and the revival of the traditional mobile way of life. It seems that Aceramic and Ceramic Neolithic groups in Cyprus were unwilling to accept social stratification and institutionalised inequalities. What is more, the apparent continuity in various habitual practices between the archaeologically visible and invisible periods excludes the possibility of island-wide abandonment and recolonisation of Cyprus between 5200–4600 BC.⁶³

Final consolidation of agropastoralism during the Middle Chalcolithic and gradual disengagement from hunting marks the initiation of a process that would eventually lead to a break with the egalitarian past. Indeed, after the collapse of Middle Chalcolithic culture, instead of yet another return to simple socio-economic structures, there is a short-lived sub-phase characterised by increasing social inequalities. The late Chalcolithic “Pithos House” at Kissonerga *Mosphilia* epitomises the new era reflecting the attempt of specific sub-groups to extend their power and economic control. The most important aspect in this sense was the ability of these groups to cut off members of the community from production and turn them into specialised craftsmen. Possible control of redistributive processes and unequal access to surplus and exotic commodities lie at the core of emerging inequalities.

Crucial in this context are both the appearance of exotic goods and also the influx of novel cultural traits⁶⁴ pointing to a period of increasing external contact.⁶⁵ This phenomenon should be “seen”

as a result of social competition and the need of individuals or sub-groups to reaffirm or enhance their status by acquiring prized commodities and adopting innovating trends. The subsequent intrusion of “foreign” traits and novel behavioural practices initiated a process of fusion of old and new elements that gradually transformed Cypriot society.

Given the violent end of the “Pithos House” and the apparent modification of settlement patterns at *Mosphilia* period 4B, it seems that there was still sufficient resistance to prevent social stratification. On the other hand, this impermanent episode of increased disparities had a deep impact on Cypriot society. The processes of socio-political transformation initiated after about 3500 BC proved to be irreversible and prehistoric Cypriot groups would never return to mobility, reciprocity and simple socio-economic structures.⁶⁶

Conclusion

Rather than proposing a simplistic unilinear evolutionary model of socio-cultural change in early prehistoric Cyprus, a different perspective characterised by considerable “back-and-forth” transformative internal processes is adopted here. This study has attempted to demonstrate the persistence of the so-called “Cypriot paradox,” an egalitarian lifeway based on simple socio-economic structures and connected to a local insular identity that seems to survive largely unvaried through any possible chronological “gaps.” It is suggested that stabilisation of agropastoralism in subsistence strategies and the subsequent realignment of production relations promoted household competition which gradually undermined the traditional social organisation. The appearance of intrusive cultural traits is attributed to increasing external contact as a result of the desire of individuals and sub-groups to enhance their status. This internally-driven perspective is partly at odds with the view of a large-scale migration and an Anatolian origin of Philia culture.⁶⁷

Concerning social complexity, even though the periods under study do not coincide with the appearance of stratified societies in Cyprus it is important to emphasise the fact that the Late Chalcolithic period reflects the beginning of the progressive dying out of egalitarian societies and the consolidation of a new social reality. In this regard, this period formed an equally important “stage” preceding B. Knapp’s three-staged evolutionary model⁶⁸ on the transformation of small-scale rural communities to a proto-urban and fully developed complex society during the Late Bronze Age.

Notes

¹ I would like to thank B. Knapp, E. Peltenburg and D. Kloukinas for their comments on earlier drafts of this paper. Thanks are also due to P. Sarri for being extremely helpful during the Conference.

² Watkins 1973.

³ Manning 1993, 35.

⁴ Watkins 1980, 139.

⁵ Wasse 2007, 63.

⁶ Held 1993, 30.

⁷ This concept goes back to the 1970s when islands were considered as “laboratories for the study of culture process” (Evans 1973).

⁸ Berg 2010; Broodbank 2000.

⁹ Kloukinas and Voskos 2013.

¹⁰ e.g. Godelier 1973.

¹¹ Knapp 1985, 2.

¹² Recent research and new excavations resulted in the considerable reduction and even disappearance of these gaps. See Clarke 2007, 20–2; Knapp 2013a.

¹³ e.g. Stanley-Price 1977.

¹⁴ cf. Peltenburg 2004b. For a full discussion see Knapp 2013a, 154–8.

¹⁵ Held (1992) discussed the possibility of migration and cultural assimilation of new groups during the 5th millennium BC (“involution model”). Similarly, Knapp *et al.* (1994, 408) argued about acculturation processes between newcomers and locals.

Concerning the long-debated issue of Philia culture see Frankel 2000; Knapp 2001; Knapp 2008, 103–28; Knapp 2013a, 260–77; Manning 1993; Webb and Frankel 1999.

16 Swiny 1989.

17 Clarke 2007.

18 Clarke 2007, 65. But see Peltenburg (ed.) 2013 for a recent integrated study of the 3rd millennium BC.

19 This idea is partly based on Halstead's work on Neolithic Thessaly, albeit in a more developed way; see Halstead 1999.

20 Voskos 2013.

21 Knapp 2010; Peltenburg 2004a, xiv; Wasse 2007, 57–8.

22 Wasse 2007, 60.

23 For a full analysis see Croft 1991; Croft 2010.

24 Clarke 2001, 70–1.

25 Voskos 2013, 53–199.

26 The percentages here form a synthesis of zooarchaeological data coming from available Ceramic Neolithic and Chalcolithic published sites. See Voskos 2013, 313–6 and Appendix IV.

27 *i.e.* Kalavasos *Pampoules*, Kalavasos *Kokkinogia* and Mari *Paliambela*. See Clarke 2004; Clarke 2009.

28 Peltenburg 1982, 102.

29 Halstead 1989; *cf.* Pearson 1957.

30 The estimated storage capacity of this area is about 1000 litres. This number exceeds the needs of a single household and points to a communal installation. See trenches A and IB in Mantzourani 2009; also Voskos 2013, 184–6.

31 Dikaios 1961, 164–5.

32 The sq 50m “Store Area” is estimated to have a capacity of nearly 7000 litres. See Peltenburg *et al.* 1985, 326; also Voskos 2013, 253.

33 *e.g.* Allison (ed.) 1999; Bender 1967; Souvatzi 2008; Wilk and Rathje 1982.

34 *e.g.* Dikaios 1961; Steel 2004, 72–4; 87–9. Stanley-Price (1979) on the other hand supported an extensive household model for Sotira.

35 Peltenburg 1982, 97, fig. 9.

36 Peltenburg *et al.* 1998, 239, fig. 14.2.

37 Papaconstantinou 2010; Peltenburg 2003.

- 38 e.g. Building 152 at *Mylothkia* (Peltenburg *et al.* 2003). Mud plaster fragments with impressions of the timber frame from *Ayious* are published in Todd and Croft 2004, pl. LIV, 1–2.
- 39 Clarke 2001.
- 40 Steel 2004, 89.
- 41 Halstead (1999, 80) notes that “The cultural value placed on hospitality is arguably projected in the investment of time and skill in production of fine ceramic vessels for eating, drinking and perhaps smoking.”
- 42 For the term “social storage” see Halstead and O’Shea 1982; O’Shea 1981.
- 43 Mantzourani and Catapoti 2004, 10–1.
- 44 i.e. the latter part of Ceramic Neolithic and Early Chalcolithic periods.
- 45 Steel 2004, 89.
- 46 e.g. Building 1547 at *Mosphilia*; see Peltenburg *et al.* 1998, 242.
- 47 e.g. Late Chalcolithic Building 2 at Lemba which was built over a cluster of graves. See also the standardised burial zone in Peltenburg *et al.* 1998, 239, fig. 14.2.
- 48 Peltenburg (ed.) 2006.
- 49 Peltenburg *et al.* 1998, 242.
- 50 Peltenburg *et al.* 1998, 249.
- 51 Bolger 2007, 173–5.
- 52 This is one of the most basic ideas in Marxist and Neo-Marxist perspectives.
- 53 Kotsakis 1992, 130.
- 54 i.e. during the first half and the latest part of the 5th millennium BC and also during the Early Chalcolithic period.
- 55 i.e. the periods of Khirokitia, Sotira and Erimi cultures.
- 56 For a similar transformation in the Aegean area, see Halstead 1995.
- 57 i.e. agropastoralism.
- 58 Especially during the sub-phases of Ceramic Neolithic rectangular buildings with rounded corners and Middle Chalcolithic “ridge buildings.”
- 59 For the recurrent phenomenon of fission in Cypriot prehistory see Peltenburg 1993.
- 60 With a size exceeding 45 sq m this is the largest excavated

building in Ceramic Neolithic contexts.

61 Valamoti 2009, 21.

62 Peltenburg 1993, 14; Peltenburg *et al.* 1998, 248.

63 For a full discussion on continuities and discontinuities in the Neolithic record of Cyprus see Kloukinas and Voskos 2013.

64 See Peltenburg 1996, 18, fig. 1; Peltenburg *et al.* 1998, 256–8;

65 As Peltenburg (2007, 151) notes “prior to the Philia horizon, LChal society was increasingly disposed to the adoption of external novelties”. See also Bolger 2007.

66 Except perhaps, regionally, as in the case of Politiko Kokkinorotsos (Webb *et al.* 2009).

67 See also Bolger 2007; Knapp 2013a, 260–77; Peltenburg 2007.

68 Incipience, emergence and development; see Knapp 1993; but *cf.* Knapp 2013b for an entirely different perspective.

Part VI

West Anatolia

The Middle Chalcolithic period in the Troad: A new look from Gülpınar

Turan Takaoğlu and Abdulkadir Özdemir

Introduction

Archaeological excavations conducted in the Western Anatolian littoral have revealed limited evidence that could illuminate the so far poorly documented nearly millennium-long Late Chalcolithic period between roughly 4300 and 3300 BC. This vagueness is particularly evident in the Troad in North-Western Anatolia. Archaeological investigations in the Western Anatolian littoral have increase yearly over the last decade, however, and have begun to shed new light on another vaguely understood, near-millennium-long period preceding 4300 BC, namely the Middle Chalcolithic in the conventional tripartite division of the Western Anatolian Chalcolithic period. Despite these new discoveries, available data still do not allow for the substantiation of arguments for a local transition both from Early to Middle Chalcolithic and from Middle to Late Chalcolithic in Western Anatolian chronology. It was discussed elsewhere that the impetus behind the appearance of new Middle Chalcolithic cultural tradition in Western Anatolia may be internal, generated by factors such as population growth or technological change, or may be the result of external stimuli at the regional or super-regional

level, such as long distance trade or the arrival of new peoples.¹ Any information related to this transitional Middle Chalcolithic period will clearly contribute to our understanding of the chronological issues, as well as the aspects of cultural change that took place in Western Anatolian littoral zones in the Chalcolithic period.

The lack of uniform chronological terminology for the 5th and 4th millennia BC causes problems in synchronising the cultures of the Western Anatolian littoral with those of the Eastern Aegean islands. This is particularly important in view of the fact that, in terms of material remains, Western Anatolian Middle Chalcolithic sites exhibit more links to those of the Greek Late Neolithic I period than they do to other parts of Anatolia. It is clear that the Middle Chalcolithic in Western Anatolia was more or less coastal-oriented and followed a line of development that was, to a large extent, separate from the cultures of the inner parts of Western Anatolia.

Gülpınar (Prehistoric Smintheion) is one of those sites that broaden our knowledge of the 5th millennium BC in the region (Fig. 49.1). Before the discovery of Gülpınar, situated in the south-western corner of the Troad, most of our knowledge of the region pre-dating the earliest settlement at Troy had depended on two major sites: Beşik-Sivritepe, identified initially through H. Schliemann's soundings at the tumulus in 1879, and Kumtepe, excavated in 1934 by J. Sperling from the University of Cincinnati and H.Z. Koşay, director of the Turkish archaeological service at that time.² Re-excavation of these two sites in the 1980s and 1990s as part of the Troy Excavation Project clarified that the pre-Bronze Age in the Troad could be characterised by two different horizons of occupation separated by a thousand-year-long gap: the Kumtepe IA/Beşik-Sivritepe horizon representing mainly the first half of the 5th millennium BC in the Middle Chalcolithic and the Kumtepe IB horizon comprising the last several centuries of the 4th millennium BC in the Late Chalcolithic period. At present,

there is still no archaeological evidence in hand to fill in the thousand-year gap between the Kumtepe IA/Beşik-Sivritepe and Kumtepe IB horizons in the Troad, where preserved stratigraphic evidence is scarce at both sites.³

The site of Beşik-Sivritepe, located nearly 10 km south of Kumtepe, was thought to be the tomb of Achilles when it was dug by Schliemann. Recent excavations determined that the mound was originally built in the Hellenistic period as a cenotaph in the shape of a tumulus and formed by different layers of earth gathered from an earlier settlement which was likely located nearby. Attempts to find the burial chamber in the 1980s failed, yet resulted in the identification of 5th millennium BC finds that show some links with the previously-identified cultural assemblage of Kumtepe IA.⁴ W. Lamb was the first to recognise the presence of pre-Trojan elements among the Beşik-Sivritepe finds long ago, upon examining the finds from H. Schliemann's 1879 soundings kept at the Berlin Museum.⁵ The excavation of Beşik-Sivritepe by a team from the Troy Excavation Project in the 1980s was of short duration because of the nature of the site. The 5th millennium BC finds retrieved from the tumulus during the brief excavations helped us better understand the cultural traits represented by the material collected at the site.⁶

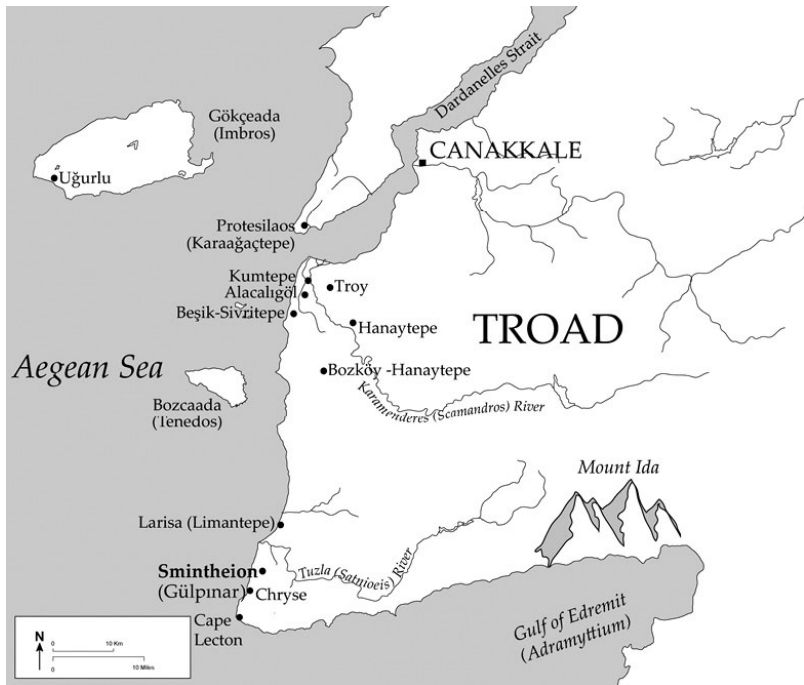


Figure 49.1. Map of the Troad. Smintheion with neighboring sites mentioned in the text.

Although re-excavation of Kumtepe in the 1990s provided a great deal of new data regarding the Kumtepe IB period, excavations were not able to add much to what was already known about the Kumtepe IA period because the site was seriously harmed by extensive farming activities since the days of its first excavation in 1934.⁷ Other sites of archaeological significance in the region also include the mounds of Hanay Tepe near Troy and Karaağaçtepe (Protesilas) near the tip of the Gallipoli peninsula. Hanay Tepe was first excavated by F. Calvert himself in 1853 and then in 1879 with the help of Schliemann, while Karaağaçtepe (thought to be the tumulus of the Achaean hero Protesilaos) was excavated by the Frenchman, R. Demangel, in 1921–3.⁸ Future excavations of these two largely-overlooked sites will probably solve several questions regarding the missing centuries of the Chalcolithic period in the Troad.

The site of Gülpınar

The prehistoric settlement of Gülpınar was identified beneath the Greek and Roman remains of the Sanctuary of Apollo Smintheus (Smintheion), on a flat area at an elevation of 60 m above sea level, 1 km east of the Aegean coast (Fig. 49.1). Upon analysing a small assemblage of prehistoric finds recovered from these trial trenches in 1981, J. Seeher was the first to identify the presence of a 5th millennium BC settlement that could be closely related to the Kumtepe IA and Beşik-Sivritepe cultural horizon at the site.⁹ It was then deemed necessary to conduct a systematic exploration of prehistoric Gülpınar and excavations were initiated in 2004. With the support of the Institute for Aegean Prehistory (INSTAP) and the Turkish Ministry of Culture, a team led by the present authors was in charge of the prehistoric excavations at Gülpınar between the years 2004 and 2014, which were carried out in parallel with the excavation of the Greek and Roman remains of the sanctuary.¹⁰ Eleven seasons of excavations conducted there unearthed an area of 1200 square meters with evidence for prehistoric occupations mainly representing the Early Chalcolithic 2 (level II) and the Middle Chalcolithic (level III) of Western Anatolian Chalcolithic, though the Late Neolithic period (level I) in Western Anatolian chronology has also been identified at the site.

Available radiocarbon dates indicate that level II began around 5320 BC and lasted until ca. 4940 BC, while the succeeding level III expanded between 4930 BC and 4450 BC. The lack of significant change in pottery forms, architecture, subsistence strategies, and various categories of artefacts indicates a steady continuum with no obvious breaks between levels II and III at the site. The architectural remains belonging to level II were levelled down to several rows of stone foundations, which followed the inclination of the bedrock. The architectural layout was renewed in level III by re-using some of the foundations of the structures from level II. A deposit of brown soil with a thickness ranging

from 10 to 50 cm covered the occupational debris of level III. Remains representing Roman and Early Byzantine occupations overlay this deposit in two different excavated sectors which were located close to one another in the settlement.

Architecture

Because the sites of Kumtepe IA and Beşik-Sivritepe did not yield much architectural evidence, the finds from Gülpınar demonstrate how the Early and Middle Chalcolithic settlements might have looked in terms of layout and spatial use. The architectural remains belonging to level II at Gülpınar were revealed in three different sectors located close to one another in the settlement. In each of these sectors, a system of adjoined quadrangular and rectangular rooms, sometimes separated by corridors or courtyards, came to light. All these buildings pertaining to level II houses were built of stone up to a height of at least 1.5 m in order to withstand flowing and standing rainwater. In sector 1, a long stone-built enclosure wall delineates the northern, western and eastern parts of the cluster of buildings, perhaps for defensive purposes (Fig. 49.2).

Building A, one of the two largest buildings at the site, adjoined the long enclosure wall in the north-eastern part of the excavated area. Building A was divided into two rooms by partition walls and the rear room to the north yielded *in situ* evidence for food production, including numerous grinding slabs and hand stones. No floor was found intact inside the building but a hard clay floor with signs of burning which could be associated with two ovens was preserved just outside the south-western corner of Building A. This indicates that the level II settlers of Gülpınar built their hearth structures often outdoors near dwellings.

Another distinctive building of level II is Building B with a stone-paved floor (Fig. 49.3). The floor of this structure was covered entirely with stones forming a drain, the surface of which

was originally levelled with mud. A stone platform with grinding slabs for food processing was found attached inside the north-west corner of Building B. Such platforms might have been used for placing grinding slabs; the uneven surface of the platform may have once been plastered with clay to provide a smooth surface for grinding activities. Two depressions for central poles observed in the centre of the floor probably indicate the use of wooden posts to support the roof.

In level III, the walls of the structures from level II were levelled down to several rows of stone foundations, which followed the inclination of the bedrock. The renewal of the architectural layout in level III was conducted by re-using most of the foundations of the structures from level II. In sector 2, the long stone-built enclosure wall delineating the northern part of the settlement was reinforced with buttresses laid along the outer face of the preceding level II long wall (Fig. 49.4). The level III buildings to the south of this wall were generally quadrangular or rectangular in plan. The rooms had beaten earth floors. Most houses contained hearths, ovens, and stone platforms for the processing of food such as grinding grain for flour. A particularly distinctive feature of level III buildings are small semi-circular silo bases. The foundations of these silos were laid in stone and often covered by a layer of clayey earth. A stack of eight saddle querns found in direct association with a stone platform in Building M, dated to level III in sector 2, demonstrates one of the ways in which these indoor stone platforms might have functioned. Plastered basins of oval ovens were found in almost every building in both phases of occupation. Each oven was placed above a base formed of small irregular stones. Some of these ovens show evidence for multiple re-plastering.

Building E in sector 1 is a clear illustration of what domestic structures looked like. A hard clay floor with signs of burning which could be associated with an oven was found intact inside Building E (Fig. 49.5). Several longitudinally grooved stone

artefacts, which could be loom weights or fishnet sinkers, were found around this hard clay floor in the centre of Building E. Supplies of food and other perishable substances were kept mainly in a large storage jar that was placed in a small unit in the corner of the building. These separate square units in the corners of the house were formed by small interior partition walls. A small unit is also attached to the north-western exterior corner of the building.

Pottery

The level II pottery at Gülpınar is handmade with four main fabrics. The pottery can be divided into two general classes, burnished and semi-coarse. Finely-burnished wares with surface colours ranging from black to various shades of brown and orange occur about three times as often as coarse wares. Among the most common shapes, the fenestrated pedestalled bowls, horn-handled bowls with flat or ring bases, and four-footed or high ring based bowls with incision-decorated exteriors form the hallmark of level II pottery (Fig. 49.6), although all these shapes continued to be used in the next phase as well. Open bowls with curving sides and bowls with inward plain or internally thickened rims have either horn-handles, lug handles, pointed side handles, semi-perforated lugs or circular pellets.



Figure 49.2. Plan of sector 1 at Chalcolithic Gülpınar.

Pattern burnishing is observed particularly on the interiors of four-footed bowls, fenestrated pedestalled bowls, and horn-handled bowls with flat or raised feet. Pattern-burnished decoration, achieved by rubbing a pointed implement back and forth over the surface of the pots before firing, appears on the surface as shiny successive lines. Motifs, such as vertical panels composed of closely spaced oblique parallel thin lines between two broader bands, vertically-arranged dots between two vertical broader bands, panels filled with cross-hatching or horizontally placed zigzags, multiple chevrons, and chevrons formed of obliquely running parallel thin lines, are very common (Fig. 49.7). This type of burnishing, ubiquitous at Gülpınar, is largely identical to the pottery of Beşik-Sivritepe, though it does not appear to have

been common at Kumtepe IA.



Figure 49.3. View of Building B in sector 1, level II.



Figure 49.4. Stone foundations of the enclosure wall with buttresses in the northern part of settlement. Note walls of a Roman structure overlying level II and level III walls.

Incision decorated four-footed bowls, with or without horn-handles, are very common among the level II pottery assemblage

(Fig. 49.8). Patterns such as superimposed chevrons, lozenges, hourglasses and zig-zags dominate, while curvilinear patterns are rare and limited to concentric circles and curving lines. *Pointillé* also appears occasionally on the exterior of these bowls. These incisions and dots were frequently filled with white paste to help decorations stand out. The closest parallel for this type of incised decoration is found at Beşik-Sivritepe.

White paint on dark burnished surfaces is also very common on the interiors of bowls with curved sides and internally-thickened rims, as well as on the exteriors of bowls with inward-leaning rims (Fig. 49.9). The patterns consist mainly of simple linear lines forming single or superimposed chevrons, lozenges, parallel zig-zags, and vertical or slanting lines in groups. These patterns were executed in matte white or red paint over the finely burnished surface of vessels usually after the pots were fired. Sometimes only the traces of vanished decoration are noticeable leaving a matte area on the finely burnished surfaces, since white or red paint applied on the surface could be flaked off during use.



Figure 49.5. Building E with small storage units: one on an interior

corner and another attached to an exterior corner, level III.

Various sizes and types of finely burnished neck jars and open-mouthed jars with in-turned walls are also found at the site. Most collar-neck jars have a single horn handle joining the rim to the shoulder, though handles occasionally appear on the belly. Neck jars preserve patterned burnish and incision or white paint decoration predominantly on the shoulders. The motifs on jars are almost the same as those documented on bowls. Open mouthed jars with in-turned walls, however, often have loop handles, oblong handles, knobs, notched ribs or various relief decorations.

Nearly all the pot bases bear the negative impressions of mats, woollen cloth, baskets, and vine leaves (Fig. 49.10). An examination of these negative impressions provides clues as to what kind of techniques were used by the mat- and basket-makers and the weavers at the site and how mats, baskets, woollen cloth and vine leaves were used by the potters. At Gülpınar, a plain weaving technique was predominantly preferred in the production of woollen cloth. This is a most elementary technique in which single warps and wefts pass over and under each other at a 90-degree angle in a 1/1 interval. This technique is so far represented only by three examples at Gülpınar. It is clear that such vessels were probably formed on a piece of woollen cloth to prevent wet clay from sticking to the ground, unless these woollen cloth pieces were used as a primitive form of turn-table. Besides scant indirect evidence for the use of woollen cloth, there is plenty of evidence regarding the use of mats. Found on nearly a thousand pot bases, twill plaiting and coiling appear to have been the two methods adopted at the site for constructing the mats. In twill plaiting, single elements pass over each other in a 2/2 interval. Bases with negative impressions of twill plaiting are often characterised by a diagonal pattern made by a shift in the grouping of warp elements as the weft was plaited through. It appears that wheat stalks formed the main materials used in twill-plaited mat making at Gülpınar, though reeds that look like *Juncus* sp., *Scirpus* sp. and

Typha sp. have also been used judging by the impressions on pot bases.



Figure 49.6. Representative complete pots from level II.



Figure 49.7. Bowl and jar fragments with pattern burnish decoration, level II.



Figure 49.8. Four footed bowls with incision-decorated exteriors, level II.



Figure 49.9. Fragment of a bowl with internally-thickened rim and white-paint decorated interior (1) and two shoulder fragments from necked jars with white-paint decorated exterior (2–3), level II.

The coiling method was rarely utilised at the site. Coiled mats are made by taking a long bundle of grass or straw and coiling it around and around upon itself in a spiral; each new turn of the coil is attached to the preceding by stitching. Negative impressions of coiled matting have so far been identified on the bases of only three vessels at Gülpınar. Examination of these three pot bases indicate that the clay was placed on a circular coiled mat so that it could easily be rotated by hand on the ground. This type of base allowed the potter to turn the pot around as the work progressed. Despite the high number of pot bases with negative impressions of mats, only several pot bases with negative impressions of baskets have been identified among the pottery assemblage. A base of an old basket may have acted as a base into which a newly-formed wet pot was placed to dry before firing. There is no evidence for the use of baskets as moulds, since negative impressions of baskets appear only on the bases of pots rather than their interiors.

In addition to pot bases with negative impressions of woven textiles, mats and baskets, nearly a dozen examples of pot bases with negative impressions of vine leaves have also been identified. It is likely that the potter shaped the wet vessel on a fresh leaf to prevent wet clay sticking to the ground during the first steps of forming the vessel.

A small assemblage of anthropomorphic handle fragments, which were possibly attached the rims of cult vessels, was also

obtained from the architectural debris of level II structures (Fig. 49.11.1–7). These examples are mainly made of the same type of grey-black clay with either burnished or finely-smoothed surfaces. These heads with mainly elongated necks were all found broken where the neck connects to the shoulder, that is, where they join the rims of vessels. The heads are noted for having a high forehead, while the noses and sharp ridges of eyes are often modelled in relief. Their maker(s) chose not to portray the mouth for some reason. The preserved ears in several examples bear horizontal piercings, probably for metal earrings. One case likely portrays grief through vertical strokes representing tears, suggesting that some examples belonged to cultic vessels used in certain ritual activities involving mourning. Another is a fragment of an anthropomorphic jar handle, also with preserved tears below eyelids marked with incised strokes (Fig. 49.11.8). Zoomorphic handles are also present in level II. These clay figurines display no obvious concentration in terms of their spatial distribution in the site. Because they were mainly found in the structural debris of the houses, their archaeological contexts do not offer an explanation for their specific function and meaning. However, the unmarking of the mouth in certain anthropomorphic protomes, which appear to have been detached from vessels, seems to indicate that some of these figurines were intended for use in cultic rites.



Figure 49.10. Pot bases with negative impressions of woolen cloth, twill-plaited mats, coiled mats, baskets, and vine leaves, levels II- III.

There does not seem to have been a very significant change in the shapes of pots and technology associated with their production from level II to level III. The major difference between these two phases is the rise of semi-coarse vessels in the succeeding phase. For instance, the number of pots representing large bowls with curving sides and loop handles, large belly-handled or neck-handled collar neck jars, baking pans (cheese pots), strainers or sieves, open-mouthed and in-turned walled jars with raised bands with fingertip-impressed decorations, and wide-mouthed and out-turned walled bowls with impressed rims increases in level III. Besides utilitarian semi-coarse pottery associated with daily life such as food preparation, large containers, such as large neck jars up to a height of 80 cm and large bowls with a diameter up to 45 cm, are commonly attested in level III.

Bowls with fenestrated pedestal bases, bowls with or without pattern-burnished decoration and plain in-turned rim, bowls with

or without incised decoration and plain in-turned rim, bowls with painted decoration and plain in-turned rim, bowls with either horn handles, uprising knobbed or twisted handles, uprising mushroom handles, circular pellets arched or pointed side handles, semi-perforated lugs or tab handles dominates the fine wares in level III at Gülpınar (Fig. 49.12). In terms of jars of the fine ware group, collar necked jars and open mouthed jars with in-turned walls prevail among the pottery assemblage.



Figure 49.11. Anthropomorphic protomes, which were possibly attached to the rims of cultic vessels (1–7) and an anthropomorphic jar handle (8), level II.

These pottery features identified among the assemblages of both level II and level III at Gülpınar are largely identical to that of the nearby site of Beşik-Sivritepe, where the pottery assemblage lacks stratigraphy because it was found in a secondary deposit in the earth of the tumulus. Excluding channelled decoration, almost all the pot shapes and decorative patterns represented at Beşik-Sivritepe appear at both levels II and III at Gülpınar. The pottery assemblage at Gülpınar also shares a number of similarities with those of Kumtepe 1A₁ and 1A₂. These common elements include

fenestrated pedestalled bowls, horn-handled bowls, and pattern burnish decoration.

Mortuary evidence

Archaeological excavations at Gülpınar also revealed mortuary evidence that may help to define the end of the Middle Chalcolithic settlement at the site. A total of seven burials representing the latest stages of level III at the site were all found laid over preceding level II walls. Each of these burials contained a single body deposited in a contracted position. Burials 1, 2, and 3 are the best-preserved examples found complete with burial gifts. The deceased in burial 1 was placed on the walls of level III structures and positioned on its left side with knees pulled up and hands resting in front of the body (Fig. 49.13). In contrast to burial 1, the body in burial 2 was laid on its right side on the virgin soil between the walls of level II structures, but positioned in a similar fashion to that of burial 1. Both burials 1 and 2 contain a bowl roughly 20 cm in diameter placed in front of the feet, which might have been a sign of belief associated with the afterlife (Fig. 49.12.1–2). The position of available parts of the skeleton suggests that the body in burial 3 was laid on its left side with knees pulled up and the hands resting in front of the body on the walls of structures. One high pedestalled bowl and part of a jug with uprising rim were found together on the chest of the skeleton in burial 3 (Fig. 49.12.3–4). The deliberate placement of this bowl and jar suggests that they were offered to the deceased during burial. Nonetheless, the remaining four of the seven burials were found in areas around the enclosure wall delineating the northern end of the settlement, yet with no identifiable burial gifts perhaps due to their poor state of preservation caused by activities in the Roman era. It seems from the radiocarbon analyses of bone samples taken from these burials that a certain area of the settlement to the north of the enclosure wall was used as a burial ground in various stages of level III from around 4675 to until

around 4450 cal BC. Using abandoned buildings as a burial ground appears to be a practice adopted particularly in level III at the site.



Figure 49.12. Pots found in level III burials: 1. Bowl with plain rim (burial 1); 2. bowl with tab handle (burial 2); 3. pedestalled bowl (burial 3); 4. bowl with uprising high handle (burial 3).

Conclusions

The contributions of the Gülpınar excavations to our understanding of the Middle Chalcolithic period in the Troad are twofold. First, the finds from Gülpınar provide information on chronological aspects of the Middle Chalcolithic period in the region. The cultural assemblages of Gülpınar II (Early Chalcolithic 2) and Gülpınar III (Middle Chalcolithic), which more or less parallels the so-called Kumtepe IA/Beşik-Sivritepe cultural horizon of the Troad, demonstrate that this period might have been represented by at least two major phases. Radiocarbon dates from Kumtepe IA and Beşik-Sivritepe cluster into two different phases.

The first phase could be dated *ca.* 5400/5300–5000/4900 cal BC, while the second phase fall between 5000/4900 and 4300 cal BC. Two dates from Kumtepe IA₁, four dates from A₂ and seven dates from Beşik Sivritepe indicate that the Kumtepe A-Beşik Sivritepe cultural horizon overall could be dated roughly to 5400/5300–4400/4300 cal BC.¹¹ Kumtepe IA₁ is dated to *ca.* 5400–5100 cal BC, while Kumtepe IA₂ calibrates respectively to 4805–4370 cal BC. The completely disturbed site of Beşik Sivritepe is dated respectively to 4900–4300 cal BC. It must be mentioned that the cultural assemblages from Kumtepe IA and Beşik-Sivritepe had both similar and idiosyncratic traits, implying that the duration of these two settlements did not entirely overlap.¹² New radiocarbon dates from Gülpınar now also confirm that this cultural horizon had a long duration, which is also demonstrated through architectural remains.



Figure 49.13. Burial 1 (left) and burial 2 (right) with bodies laid in a contracted position. Note the complete bowl placed in front of the feet as an offering, level III.

Second, the finds from Gülpınar provide information about aspects of cultural interaction that took place in the Middle Chalcolithic period. The analysis of pottery from levels II and III at Gülpınar shows that the sites of this period derived elements both

from the Balkans and the Aegean islands. Pottery features defining the Middle Chalcolithic at Gülpınar prevailed at sites located as far south as Lycia and Pamphylia in Western Anatolia. For instance, the sites of Liman Tepe, Çakmak Tepe, Ulucak, Ege Gübre, Yeşilova, and Çine-Tepecik in Central-Western Anatolia and Malkayası Cave, Tavabaşı Cave, Beçin, Karain Cave, Lower Bağbaşı, and Kızılbel in South-Western Anatolia all yielded finds that coincide with only certain periods in this centuries-long Middle Chalcolithic period. This Middle Chalcolithic pottery tradition of the Western Anatolian littoral finds close parallels among the pottery of numerous sites in the Cyclades and the Eastern Aegean islands, including Emporio and Ayio Gala on Chios, Tigani on Samos, Saliagos, Cave of Antiparos, Cave of Cylopes on Youra, Akrotiri on Thera, Ftelia on Mykonos, Grotta and Zas Cave on Naxos, Kalythies on Rhodes and Vathy Bay Cave on Kalymnos. These similarities indicate that the sites of the Western Anatolian littoral and the Aegean islands began to share a number of common traits in their material assemblages as early as the beginning of the 5th millennium BC. Despite use of different chronologies in western Anatolia and the Aegean islands, there is no reason not to think that these two regions were part of the same cultural formation zone during this period.

The Middle Chalcolithic period could be characterised with a certain rise in the levels of cultural interactions and trade when compared to the preceding Early Chalcolithic 2 period. The appearance of copper tools, marble vessels, jadeite axes and chisels, rock-crystal tool, obsidian from both Melos and Central Anatolia, and certain imported pots clearly proves that the settlers of Gülpınar III had strong external relations during this period.

Overall, the finds from the Gülpınar excavations imply that the Middle Chalcolithic is a cultural tradition that was peculiar to the Western Anatolian littoral and the Eastern Aegean islands. In terms of cultural interactions and mobility, this period was evidently a dynamic stage in the prehistory of the Eastern Aegean

world. Throughout the Middle Chalcolithic period, Gülpınar was one of the sites with the longest duration of occupation, since most other sites of the period were settled only for one or several centuries.

Notes

- 1 Takaoğlu 2005.
- 2 Koşay and Sperling 1936; Lamb 1932, 124; Schliemann 1881, 727; Sperling 1976.
- 3 Bertram and Karul 2014; Gabriel 2000; Gabriel 2001a; Gabriel 2006; Korfmann *et al.* 1995; Seeher 1985; Seeher 1987a; Takaoğlu 2006.
- 4 Gabriel 2000; Gabriel 2001a; Gabriel 2001b; Gabriel 2006; Gabriel 2014; Seeher 1985.
- 5 Lamb 1932, 124; Schliemann 1881, 727.
- 6 Seeher 1985.
- 7 Bertram and Karul 2014; Korfmann *et al.* 1995.
- 8 Calvert 1880; Demangel 1926; Lamb 1932; Seeher 1987a, 546; Schachner 1999, 9.
- 9 Seeher 1987a.
- 10 Takaoğlu 2006.
- 11 Korfmann and Kromer 1993; Kromer *et al.* 2003.
- 12 Gabriel 2014.

On marble, conical rhyta: New evidence from Yeşiltepe in the West Anatolian hinterland

*Turan Takaoglu and Onur Bamyacı*¹

Introduction

Characterised by their tapering bodies and two symmetrically opposed vertical lugs just below the rim, marble conical rhyta are one of the hallmarks of the 5th and 4th millennia BC in Western Anatolia and the Aegean. Their conical shapes with pointed bottoms clearly imply that rhyta made of marble were not objects of daily use. They could be described as items of social and symbolic value accessible only to wealthy individuals due to the cost of production and transportation. It would seem more likely that this type of container with a pointed bottom would need to be suspended, since their surfaces present no wear marks from standing within earth or sandy soil, or other kind of “stand”. Perhaps it was the need for suspension of the earlier, pointed bottom version of the 5th and 4th millennium BC that influenced the presence of lugs on later flat-bottomed examples of the early 3rd millennium BC, which would not seem to have required suspension.

A new form that could be viewed as a transitional type between the earlier pointed bottom version of the 5th and 4th

millennium BC and later flat-bottomed early 3rd-millennium BC examples have recently turned up at the site of Yeşiltepe in the Western Anatolian hinterland (Fig. 50.1).² This transitional type is represented by two complete marble rhyta with rather elongated tapering bodies ending in a flat bottom (Fig. 50.2), a form that closely recalls the pointed-bottom version of conical rhyta except that its tapering body ends with a flat base. These two examples were unfortunately looted from cist graves in the extramural cemetery of Yeşiltepe in 1987, according to information provided by Eskişehir Archaeology Museum. Evaluation of these two examples from Yeşiltepe in relation to other examples of this type may contribute to our understanding of the development of marble rhyta from the mid-5th to the early 3rd millennium BC in the circum-Aegean region.

The site and its finds

The site of Yeşiltepe lies 500 m south of the homonymous village close to the town of Mahmudiye in the province of Eskişehir in the Western Anatolian hinterland (Fig. 50.3). This low mound is situated on a fertile plain with arable land and ample water sources at an elevation of 892 m above sea level, 500 metres east of the Seydi (ancient Parthenios) river. The site is also located roughly 100 km south-east of the region's well-known prehistoric site of Demircihöyük, excavated in the 1980s. An extramural cemetery characterised by cist graves lined with upright, large, flat stones covered with capstones was found on the flat ground around the mound of Yeşiltepe as a result of intensive illicit digs (e.g. Fig. 50.4). Unfortunately, despite the extensive looting activities, no scientific or rescue excavation has so far been conducted either at the cemetery or at the mound related to the acquisition of the marble vessels. Most pot sherds observed on the surface of the extramural cemetery around the cist graves seem to fall into the early 3rd millennium BC, though there are some finds among the surface material that could be dated to the late 4th

millennium BC. Besides the two complete, elongated marble rhyta with flat bases, which are the focus of this modest work, an additional five other marble bowls of high craftsmanship from the same looted cist graves were also delivered to the Eskişehir Archaeology Museum (e.g. [Fig. 50.5](#)). Four of these bowls have a more-or-less conical shape, with diameters ranging from 17 to 26 cm, while the 5th example represents a rather deep bowl measuring 38 cm in diameter and 35 cm in height.

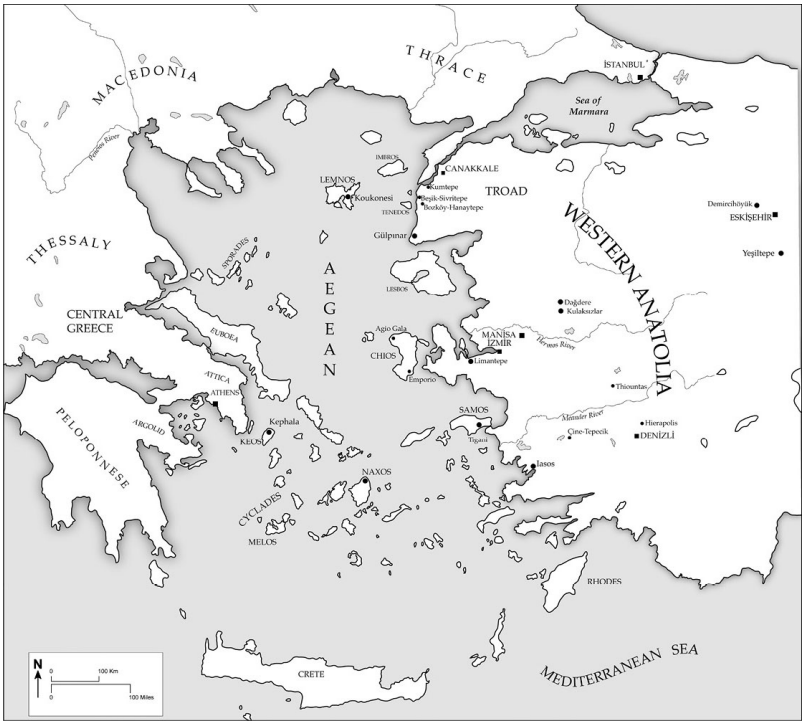


Figure 50.1. Map locating Yeşiltepe and major sites with marble rhyta mentioned in the text.



Figure 50.2. Two marble rhyta illicitly excavated at Yeşiltepe.

Both of the two marble rhyta from Yeşiltepe have a rather elongated body and two symmetrically opposed vertical lugs with horizontal perforation for suspensions on the upper part just below the rim. One of them is made from a fine-grained creamy-white marble and measures 38.4 cm in height, while the other is of fine-grained greenish-grey marble and measures 39.5 cm in height. Each of these rhyta preserves marks of rotary drilling on the lower interior. It is clear that the interior was hollowed out using a bow drill. The drilling marks seen on the inside of these rhyta confirms the use of a series of drill-bits of varying diameters in order to create a cavity that matches the exterior contour of the vessel. Faint vertical and diagonal marks of abrasion are also observed on the upper interior and most parts of the exterior, related to the refinement step in their manufacture.

Comparable evidence

Prior to the discovery of these two complete marble rhyta from Yeşiltepe, two EBA I period flat-based marble rhyta with vertical lugs for suspension from the Carian coastal site of Iasos represented the only known intact examples in Western Anatolia.³ However, at least one example of a marble rhyton with tapering body has come to light at most excavated sites in Western Anatolia with 5th millennium BC finds (Fig. 50.6). These fragments have often been considered to be parts of rhyta with pointed bottoms. The Kulaksızlar marble workshop in Central-Western Anatolia, identified through surface finds, has so far been the only place where a production locus for marble rhyta with tapering bodies has been documented from the manufacturing debris and related tools found there.⁴ The Kulaksızlar evidence may demonstrate what categories of archaeological evidence to expect when encountering a production site, at least for marble rhyta in the archaeological record. Other workshops for the production of marble rhyta are expected to be uncovered in the future, since these distinctive objects also appear in later periods. No workshop site for the production of marble objects has so far been identified in the Cyclades or in other parts of Western Anatolia. The Kulaksızlar workshop has been dated to the mid-5th millennium BC on the basis of homogeneous surface pottery recovered from the site, which can easily be synchronized with that of Kumtepe IA, Beşik-Sivritepe, Gülpınar III in the Troad, Ulucak III, Liman Tepe VII and Çine-Tepecik IV in Central-Western Anatolia, Malkayası Cave and Tavabaşı Cave in South-Western Anatolia, and Emporio X–VIII and Tigani I–II, Kos and Kalymnos on the Eastern Aegean islands.



Figure 50.3. View of Yeşiltepe in the background. Note the illicitly dug cist graves in the foreground of the mound.



Figure 50.4. One of the cist graves illicitly dug at the extramural cemetery of Yeşiltepe.



Figure 50.5. Examples of other marble bowl types found along with marble rhyta at Yeşiltepe.

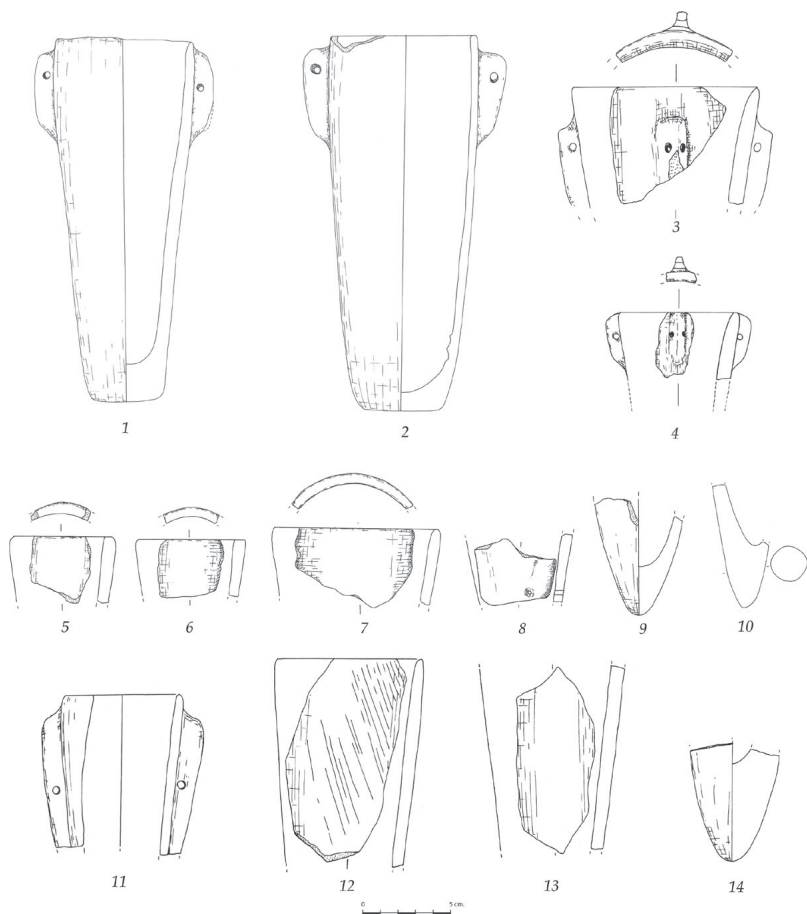


Figure 50.6. Examples of marble rhyta from Western Anatolian sites: 1–2. Yeşiltepe; 3. Demircihöyük; 4. Bozköy-Hanaytepe; 5–6. Beşik-Sivritepe; 7–9; Gülpınar; 10. Kumtepe; 11–4. Kulaksızlar.

Comparison of the marble rhyta from Yeşiltepe with other known examples coming to light in Western Anatolia and the Aegean islands can help us to estimate the chronological affiliation of these examples and demonstrate why they could have belonged to a transitional type in the chronological evolution of marble rhyta. For instance, the marble rhyton type was previously represented by a rim fragment with a horizontally pierced vertical lug at Demircihöyük, the site closest to Yeşiltepe in the West

Anatolian hinterland (Fig. 50.6.3).⁵ Although this rim fragment was recovered from settlement phase L dated to the EBA, its date in fact is problematic. A feature of Demircihöyük is that almost all EBA layers yielded high quantities of sherds, stone tools and small objects from Neolithic and Chalcolithic occupations that are not represented at the site stratigraphically. This was probably caused by transportation of the earth by the EBA settlers of Demircihöyük from an earlier settlement located nearby in order to construct mud-brick houses at this site. Based on this evidence, Seeher suggested that this marble rim fragment was either an intrusive fragment belonging to a marble conical rhyton pre-dating the EBA or part of a flat-based beaker dating to the EBA stratum in which it was found.⁶ Perhaps the Demircihöyük example belonged to an elongated rhyton type with a flat base, especially considering the angle of the body, similar to the two examples from Yeşiltepe.

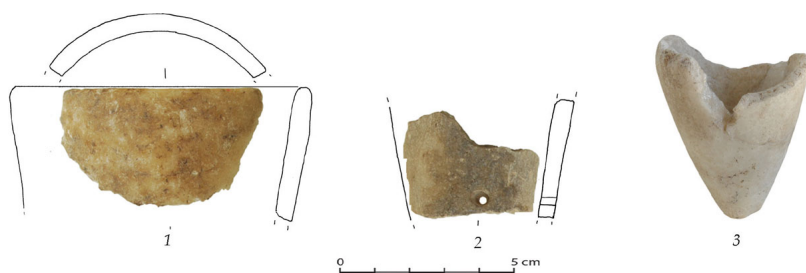


Figure 50.7. Three fragments of conical marble rhyta from phase III at Gülpınar.

Besides the Western Anatolian hinterland, six fragments of marble rhyta have also been recognised at sites in the Troad in North-Western Anatolia with 5th millennium BC evidence, including Kumtepe, Beşik-Sivritepe, Gülpınar and Bozköy-Hanaytepe. The rim fragment with a horizontally-pierced vertical lug recently found during a survey at Bozköy-Hanaytepe recalls the fragment from Demircihöyük in appearance (Fig. 50.5.4),⁷ whereas the two small rim fragments identified among the 5th millennium BC assemblage of Beşik-Sivritepe in the 1980s

preserve no pierced vertical lugs (Fig. 50.6.5–6). These examples from Beşik-Sivritepe are dated to the 5th millennium BC on the basis of finds associated with them during excavations.⁸ The conical marble rhyton type is represented by three examples at phase III at Gülpınar (Figs 50.6.7–9 and 50.7.1–3).⁹ One of these is a rim fragment with an unpreserved vertical lug. The second example is a fragment of the lower body near the pointed bottom of the vessel, which has a hole near its lower edge, probably perforated during use of the pot for the purpose of mending it. The third example is a pointed bottom fragment. Unfortunately, none of these three examples were found in contexts to demonstrate actual use, since they came from structural deposits inside houses, excluding the pointed bottom fragment found near disturbed burial 5. Radiocarbon dates obtained from the strata where these marble conical rhyta fragments were collected around 4500 BC. The examples from both Beşik-Sivritepe and Gülpınar III belong to the same horizon, because the material cultures in the strata where the fragments of marble rhyta were found at both sites are almost identical.¹⁰ The specimen from Kumtepe, on the other hand, represents a pointed bottom fragment reportedly from level C of the EBA I, although it was considered to be a relic of earlier times by the excavator (Fig. 50.6.10).¹¹

The lack of marble sources and of evidence for manufacture of marble rhyta in the Troad could indicate that the examples from Gülpınar, Beşik-Sivritepe, Kumtepe, and Bozköy-Hanaytepe were obtained through exchange. A marble provenance study was recently conducted by D. Tambakopoulos and Y. Maniatis at the Laboratory of Archaeometry of NCSR “Demokritos” in Athens in order to understand whether or not the marble vessels from Gülpınar III were derived from Kulaksızlar, the only marble workshop thus far identified in Eastern Anatolia.¹² Techniques including measurements of Maximum Grain Size (MGS) under a stereoscopic microscope and qualitative examination of the marble crystalline features, Electron Paramagnetic Resonance

Spectroscopy (EPR), and Stable Isotope Analysis (IRMS) were utilised for analyses in this study of provenance. The results show that the marbles of the conical rhyta fragments from Gülpınar III and those from Kulaksızlar do not exhibit possible relationships. This study also demonstrated that these marble samples have no relationship with known Cycladic marble sources and other artefacts known from the Aegean. This study of provenance points to an entirely different centre for the source of production of marble rhyta in Western Anatolia than the already known sources.

Surface investigations at the site of Dağdere, located on a high hill nearly 10 km north of Kulaksızlar in the Akhisar-Manisa region, recently yielded fragments from four different marble rhyta with pointed bottoms along with over a dozen fragments of marble Kilia figurines. The homogeneous surface pottery assemblage associated with these marble finds at Dağdere are identical to that of Kulaksızlar, which again points to a date sometime around the mid-5th millennium BC.¹³

An early date for marble rhyta with a pointed bottom is also supported by long-awaited archaeological evidence from Liman Tepe in the İzmir region. Two fragments of marble rhyta reportedly came from level VII representing the Middle Chalcolithic period at Liman Tepe.¹⁴ One of them is a pointed bottom fragment and the other a rim with part of a vertical lug preserved. Because these specimens from Liman Tepe have not yet been subjected to any provenance study, it is difficult to know whether these two newly-found fragments were products of the nearby Chalcolithic Kulaksızlar workshop or from a thus-far unidentified workshop located in another part of Western Anatolia. A similar pointed bottom fragment representing a marble rhyta similar to that of Liman Tepe was very recently reported from phase IV at Çine-Tepecik near the Meander river basin to the south of the İzmir region.¹⁵ The pottery evidence associated with this marble conical rhyton fragment indicates that the example from Çine-Tepecik IV probably belonged to the mid-5th millennium

BC.

One complete marble conical rhyton without vertical lugs for suspension was found in Grave 41 in the Varna Cemetery in Bulgaria.¹⁶ This specimen, also dating roughly to the middle of the 5th millennium BC, could have been an import from an unknown source in Western Anatolia. Dimitrov suggests that the rhyton from Grave 41 is an artefact of Anatolian origin because an obsidian object of Central Anatolian origin was found in the same grave.¹⁷

Marble conical rhyta are also common at sites on the Aegean islands such as Kephala on Keos, Tigani on Samos, Koukonisi on Lemnos, and Naxos. The wall fragment from Phase II at Tigani¹⁸ is more or less contemporary with the pieces dating to the first half of the 5th millennium BC. The rim fragment with vertical lug from a conical rhyton from Phase IVb at Tigani,¹⁹ on the other hand, parallels the Final Neolithic examples from Kephala, where one complete and two fragmentary pointed rhyta were found in Grave 20.²⁰ The complete rhyton from Kephala and rim fragment from Tigani IVb probably belonged to the same tradition as both have vertical lugs with horned tops. These examples differ from Western Anatolian examples in this aspect. It is possible that the examples from Kephala and Samos were manufactured in a workshop so far unidentified in the Aegean, since these marble rhyta were not produced from the local marble of these islands. The complete pointed beaker from Naxos, which is at present kept at the National Museum of Denmark at Copenhagen, unfortunately lacks context to place it in its temporal setting.²¹ The latest example of a conical rhyton to be found on the Aegean islands is a pointed base from the EBA site of Koukonisi on Lemnos.²² Overall, the evidence shows that marble conical rhyta are characteristic of the late 4th millennium BC on the Aegean islands. It is difficult to prove whether this type endured into the EBA, when marble rhyta with a flat base were mainly in use in the Grotta-Pelos phase. At this stage of our research, the body fragment of a conical rhyton

from phase II at Tigani on Samos remains the only example that could be related to early western Anatolian examples in terms of early dating, while most examples coming from the sites of the Aegean islands favour a date sometime in the late 4th millennium BC.

Discussion of evidence

The brief evaluation of the available specimens representing marble rhyta demonstrates that the rhyton type with a pointed bottom was mainly popular in the first half of the 5th millennium BC in Western Anatolia, although it also turned up at the Eastern Aegean island of Samos in this period. It is unfortunate that no workshop for the production of marble pointed-bottom rhyta has been identified anywhere in Western Anatolia and the Aegean islands other than at Kulaksızlar. It is clear at this point of research that there must have been other 5th millennium BC marble workshops focused on the production of this type of rhyton.

The Yeşiltepe rhyta with their rather elongated tapering bodies ending in a flattened base instead of a pointed bottom appear to represent a previously unknown sub-type of marble rhyta in the circum-Aegean region. It is possible that this transitional type, roughly to be dated to the late 4th and early 3rd millennia BC, could be viewed as a forerunner of the well-known flat-based marble rhyta with horizontally pierced vertical lugs of the EBA I in the Aegean. Although it requires archaeological demonstration, the Eskişehir region in the Western Anatolian hinterland, rich in marble sources exploited extensively throughout Classical antiquity, might be one of those places where marble objects of special use were manufactured in the late 4th and early 3rd millennium BC, if not earlier. The current status of evidence regarding Western Anatolia and the Aegean demonstrates that more collaborative works need to be conducted in order to understand the patterns of production, exchange and use of

marble objects.

A recent archaeometric study demonstrated that there was a marble source dating to the late 4th millennium BC in South-Western Anatolia.²³ Based on stable isotopic investigations, analysis of marble vessel fragments dating to the later centuries of the 4th millennium BC from the 1990s excavations at Kumtepe IB pointed to Hierapolis, Denizli, and the Thiountas region in the hinterland of South-Western Anatolia as a source. This clearly points to a previously undocumented long-distance trade in marble vessels between the coastal Troad and the hinterland of South-Western Anatolia during the final centuries of the 4th millennium BC. It is not clear whether or not the same source also provided the sites of Western Anatolian communities with marble objects such as conical rhyta due to the minimal number of archaeometric studies regarding this period. The marble workshop at Kulaksızlar in Central-Western Anatolia at present remains the only known source that could have provided some of the communities of the 5th millennium BC with marble objects such as the conical rhyta.

Notes

1 We are grateful to the late D. Çağlar, former director of Eskişehir Museum, for kindly allowing us to study these marble vessels from Yeşiltepe.

2 These two complete, distinctive marble rhyta from Yeşiltepe are currently kept in Eskişehir Archaeology Museum. Their inventory numbers are A.30.87, A31.87. Archaeologists became aware of these marble vessels only in 1987 when they were put on display in an exhibition at the newly-renovated museum. Previously, they had been kept in the depot of the museum.

3 Getz-Gentle 1996, fig. 34; Levi 1965/66, figs 170–1; Pecorella 1984, fig. 10.

4 The Kulaksızlar marble workshop was first identified through the meticulous work of R. Dinç. Unfortunately, archaeological data is still insufficient due to extensive looting and lack of excavation

there. See Dinç 1996a; Dinç 1996b; Takaoğlu 2002.

5 Efe 1988, 79, pl. 38.7.

6 Seeher 1987b.

7 Blum *et al.* 2011, pl. 12.6. We thank R. Aslan for allowing us to use the drawing of the specimen from Bozköy-Hanaytepe.

8 We are grateful to J. Seeher for providing information about these two Beşik-Sivritepe examples. We thank the Troia Project for allowing us to use the drawings of these two specimens.

9 Takaoğlu 2006, 309, fig. 14.

10 We thank U. Gabriel who kindly informed us about the finds from the Troad sites of Beşik-Sivritepe and Kumtepe, see Gabriel 2014.

11 Sperling 1976, 322.

12 Tambakopoulos and Maniatis forthcoming. It was not possible to include other Troadic specimens from Beşik-Sivritepe and Kumtepe in the provenance study. The one from Bozköy-Hanaytepe was found after the provenance study was completed.

13 Takaoğlu 2017, figs 3 and 5.

14 Erkanal and Şahoğlu 2012b, 221; Kouka 2009b, 143, fig. 5; Şahoğlu and Sotirakopoulou (eds) 2011, 174–5.

15 See S. Günel this volume.

16 Höckman 1987, 73; Ivanov 1996, fig. 34; Weishaar 1982, 324.

17 Dimitrov 2003, 32.

18 Felsch 1988, V23, pl. 75.

19 Felsch 1988, V26, pl. 48.2, 75.

20 Coleman 1977, 64, pl. 23, 67

21 Renfrew 1972, pl. 1.2.

22 Boulotis 1997, 257; Devetzi 1997, fig. 1.

23 Zoldfoldi 2011, 199, figs 107–8.

The Chalcolithic period at Yeşilova Höyük

Zafer Derin and Tayfun Caymaz

Introduction

The prehistoric settlement at Yeşilova, covering an area roughly 800 metres in diameter in the middle of the Bornova Plain (Figs 51.1, 51.2), has been accepted as one of the earliest loci of settlement in the area of İzmir in Central-Western Anatolia.¹ Discovered in 2003, Yeşilova Höyük is situated just south of the Manda River in the Karacaoğlan Quarter, which is within the metropolitan district of Bornova in İzmir. The settlement area is 4 km from the present-day coastline. The Bornova Plain, which had similar geographical boundaries in the prehistoric era, became home to the first settlers in the İzmir region. Besides Yeşilova, two other prehistoric settlements have been identified near the mound, since prehistoric occupation began to expand continuously towards nearby Yassitepe and İpeklikuyu following the end of the Neolithic period. The settlement consists of a 3–4 m layer composed of three cultural levels on top of a fine alluvial mound: level IV represents the Neolithic period, level III represents a stage in the Chalcolithic period, and level I–II has multiple phases from the EBA to the Late Roman era.

Neolithic settlement, level III

The first habitation at the mound dates back to the Neolithic

period, at least 8000–9000 years before the present. This period is represented by 10 superimposed architectural layers.² The most important elements that characterise the Neolithic period are pottery and small finds.

Bronze Age settlement (Yassitepe), level II

The Early Bronze Age settlement at Yeşilova can be defined as the continuation of the Chalcolithic settlement. In addition to similarities in pottery, the stone foundations of large buildings point to an important development. These architectural remains together with a graveyard were found in the centre of the mound. The EBA settlement, similar to the oldest layer of Troy, is made up of long, narrow, rectangular planned megaron-like structures with high stone walls.³ The destruction of the walls suggests that this 5000-year-old settlement ended with an earthquake in 2850 BC on the basis of radiocarbon dating.

Chalcolithic settlement, level III

The Neolithic settlement spread to the north, all the way to Yassitepe, and was completely abandoned after a huge fire around 5800 BC. We know that Yeşilova was invaded 1300 years later by a completely different society. After arriving at the abandoned Late Neolithic settlement, the newcomers built structures comprising simple round huts. Level III, representing the Chalcolithic period at Yeşilova, has preserved deposits only in a limited area. Level III appears to have represented two different phases in the Chalcolithic settlement, extending across the whole mound. In the centre of the settlement, architectural remains have been attested along with associated pottery. These structures are characterised by pit floors dug directly into the soil (Fig. 51.3). The edges of the structures, which had been first dug in the Neolithic levels, descend with a slight slope and reach a depth of 1 m in the centre and are at least 6–8 m in diameter.

The building's floor, the edges of which appeared to be

damaged, continued in the northern cross-section. The floor of the hut was formed of mud plaster around 3 cm in thickness under which was a paving made of pieces of broken pottery placed in quite a few places while the mud was still wet. A fireplace was also placed on this floor. In the lower levels under the floor, heaps of debris were found approximately 16.1 m in thickness consisting of stones of various sizes, pieces of burned mud and pots belonging to the second level of the Chalcolithic period. Some whole pots and other finds were found *in situ* on top of this floor (Fig. 51.4).



Figure 51.1. Map locating Yeşilova in Central-Western Anatolia.

The pottery of level III at Yeşilova is homogeneous in character in terms of both paste and surface features. The pottery of phases A and B does not show great variation. Among the surface colours, 65% are grey and greyish brown and 25% are shades of brown. Burnished pottery somewhat outnumbers simple pottery. However, burnishing was generally performed lightly and carelessly (Fig. 51.5). The Chalcolithic pottery was generally roughly-made. The paste was tempered with small stones and mica, varying in size according to the size of the pots. Some of the pieces of larger vessels were plant-tempered. The firing of the

small and medium-sized pots was good to average, while firing of the larger pots was average or poor.⁴

The Chalcolithic pottery is aesthetically inferior when compared to the Neolithic pottery. Burnish is more important than slip in the surface treatment. On the surface, shades of grey and brown are common (Figs 51.6–7).⁵ The most characteristic shape (40%) of the level III pottery is the carinated bowl. About 20% of these bowls have high handles which are attached to the space between the rim and the shoulder on the interior and exterior. They are of two types; namely basket-handles and mushroom-shaped handles. Small knobs are frequently seen on their lower back.⁶

Carinated bowls with high handles are the foremost distinctive element of the pottery of the Middle Chalcolithic period. Such bowls were found at Gülpınar in North-Western Anatolia, Çakmak Tepe, Liman Tepe VI, Kulaksızlar, Demirli Cave, Yoğurtçu Kale Cave in Central-Western Anatolia, Beçin Fortress and Karain Cave in South-Western Anatolia, and Kuruçay 11 in the Lake District, as well as Emporio X–VIII on Chios and Tigani II–III on Samos in the Eastern Aegean islands.⁷

At Yeşilova, jars constitute the second most common (40%) shape. Necked jars predominate. Some jars are either short-necked or without necks. The jars are of various height, and the quantity of short jars is also noteworthy. All jar handles are vertical, and some of them are horned. Such handles are seen in almost all of the above-mentioned settlements. On the other hand, the back is crescent-shaped in some vertical handles, and their interior is decorated with knobbed rows. We encounter the closest analogues of such handles at Liman Tepe VII.⁸ Both pierced and unpierced lugs are also seen on the jars, along with vertical handles. The vertical-handled jars without necks are a characteristic shape. In these jars with a light and simple surface, the handles mostly rise from the rim and are attached to the belly, and are generally horned. Analogous jars are also present in the settlements of



Figure 51.2. View of the Bornova Plain showing location of Yeşilova (photo by I. Kayan).

The ratio of open bowls is around 10% among the pottery of level III at Yeşilova. They vary in height, and their sides can be either convex or straight. Various types of handles and lugs are seen on them. On the interior of one group of bowls are symmetrical knob-shaped lugs. Analogues of such bowls are encountered at Liman Tepe VII and Orman Fidanlığı VII.¹⁰

The quantity of pottery that is generally misnamed cheese-pot (?) in the archaeological literature is about 6–7%. It is hard to determine the shape of these pots since they have not been obtained in complete form. Existing specimens indicate that the pottery was mostly made as portable “bread-baking pots” (Fig. 51.8), because their front face was open and their sides were pierced for the fermentation and baking of dough, while the coarse exterior of the pottery was darkened by fire. These pots are present in the majority of settlements which are contemporary to

the pottery of level III.¹¹

Of the characteristic elements, pattern-burnished decoration is represented by a small number at Yeşilova. Such decoration was also added to the interior of some carinated bowls. It is understood that pattern-burnished decoration was more common at Gülpınar and Beçin Fortress.¹² Some carinated bowls at Tigani II and III also display pattern-burnished decoration.

Bowls with low bellies, bowls with inward-leaning rims, bowls with inward-thickened rims, conical beakers, and vessels that might have been used as lids are present, but are uncommon within the shapes of level III. The bases are mostly simple; either concave or flat whereas some are slightly higher. Decorated sherds are few (1%). Besides pattern-burnished decoration, other styles of decoration such as incised, *pointillé*, notch, and impressed are also present on these sherds.

Ceramics similar to the Middle Chalcolithic pottery of Yeşilova was present in an area extending from North-Western Anatolia to the coast of Antalya. Of the Aegean islands, Chios and Samos are also included in the same cultural area. Furthermore, elements akin to this cultural tradition are encountered in layer VII of Orman Fidanlığı.



Figure 51.4. Chalcolithic vessels during excavation of level III.

The settlement of level III at Yeşilova reflects an advanced phase of the Middle Chalcolithic period. Gülpınar in North-Western Anatolia seems to belong to an earlier stage. Some parallels of the Yeşilova pottery found in the pottery of sites such as Kum Tepe IA form the basis of this inference.¹³ Footed bowls are a characteristic example of this. The final phase of the process is observed at the settlement of Liman Tepe VII, where white-painted decoration characterises the ceramic assemblage. This decoration was applied to both carinated bowls with high handles¹⁴ and newly-occurring bowls with inward-thickened rims.¹⁵ There is a group of carinated bowls with high handles in the early layer of the Late Chalcolithic settlement at Bakla Tepe 4.¹⁶ It is seen that this typical shape of the Middle Chalcolithic period disappeared, then bowls with inward-thickened rims, some of which had white-painted decoration, and their derivatives, became widespread in the following phase.¹⁷ White-painted decoration is seen at Emporio starting from the earliest phase (X), and it increases later in phase VIII.¹⁸ Furthermore, white-painted

decoration seen on some vessels in Tigani became widespread in the next period (IV).¹⁹



Figure 51.5. Complete Chalcolithic vessels, level III.



Figure 51.6. Chalcolithic pot sherds, level III.



Figure 51.7. Chalcolithic pot sherds, level III.



Figure 51.8. Fragments of a cheese pot (?) and suggested use in baking bread.

Conclusion

According to what has been described in the previous paragraphs and comparing the radiocarbon dates from Beşik-Sivritepe (4800–4500 BC) as well as those from Kumtepe IA (4800–4370 BC) with those coming from level III of Yeşilova (4340–4230 BC),²⁰ it is

possible to securely place the Middle Chalcolithic horizon of the latter site, generally extending from Gülpınar to Bakla Tepe (Late Chalcolithic 4), to the second half of the 5th millennium BC.²¹

Notes

- 1 Derin 2011, 95; Derin 2012, 177, www.yesilova.ege.edu.tr.
- 2 Derin 2012, 179.
- 3 Derin and Caymaz 2013, 125–6.
- 4 Derin 2011, 103, fig. 13.
- 5 Most of the pots were grey and blackish grey in color (10YR 5/1 grey; 10YR 4/1 dark grey; 10YR 3/1 dark grey), sometimes in tones of brown and brownish red (10YR 5/3 brown; 10YR 5/2 greyish brown; 7.5YR 6/4 light brown; 10YR 7/4 very light brown; 10YR 5/4 yellowish brown). Burnishing marks are seen on some of them.
- 6 Derin *et al.* 2009, fig. 14; Derin 2011, 103, fig. 13.7,12.
- 7 *cf.* Gülpınar (Takaoğlu 2006, fig. 6–7; Özgünel and Kaplan 2009, 410); Çakmak Tepe (Caymaz 2010, 115, fig. 81.5–7, fig. 14.5–7); Liman Tepe (Caymaz 2010, 125, fig. 82); Kulaksızlar (Dinç 1996a, fig. 5.124–6, 128–33; 6.159–67; Takaoğlu 2001, 161, fig. 5); Demirli Cave (Bostancı 2002, pls LIII.1–3; LVIII.4); Yoğurtçu Kale Cave (Derin and Caymaz 2013, 128, fig. 2); Beçin (Yıldız 2008); Karain Cave (Kökten 1955, pl. II.1–2, 6–9; 3); Kuruçay (Duru 1994, pl. 67.5–6); Emporio (Hood 1981, 280, fig. 134; Hood 1982, 629, fig. 185.22); Tigani (Felsch 1988, pls 80.47.2–43, 5–8; 83.UP 24).
- 8 Caymaz 2010, fig. 87.7–10.
- 9 Caymaz 2010, fig. 86.1; Efe 2001, fig. 18.281–3.
- 10 Caymaz 2010, fig. 84.4; Efe 2001, fig. 19.287.
- 11 Caymaz 2010, fig. 81.3–4; 88.1–5; Derin *et al.* 2009, 10, fig. 15; Felsch 1988, pl. 99. 223a; Hood 1981, fig. 119; Takaoğlu 2006, fig. 11.30–3; Yıldız 2008.
- 12 Özgünel and Kaplan 2009, fig. 3; Takaoğlu 2006, fig. 10.24–9; Yıldız 2008.
- 13 Özgünel and Kaplan 2009, 410; Seeher 1987a, Abb. 3.2, Abb. 5.6; Takaoğlu 2006, 297, fig. 9.221–3.
- 14 Caymaz 2010, fig. 82.9–10.
- 15 Caymaz 2010, fig. 83.7–12.
- 16 Caymaz 2010, fig. 89.

- 17 Caymaz 2010, 153–6.
- 18 Hood 1981, 290–1, 294.
- 19 Felsch 1988, 46.
- 20 Derin *et al.* 2009, 7.
- 21 Derin 2012, 179; Hood 1981, 165; Kaplan *et al.* 2013, 393; Krömer *et al.* 2003, 43–54; Sperling 1976, figs 9–11.

What follows the Late Neolithic occupation in Central-Western Anatolia? A view from Ulucak

Özlem Çevik

Introduction

The mound of Ulucak is located 25 km east of the city of İzmir, on the highway from İzmir to Ankara (Fig. 52.1). Kemalpaşa Plain on which the mound is situated is surrounded by the Mountain Nif to the south and the Mount Spil to the north-west. The plain is watered by the Nif Stream, which is one of the tributaries of the Gediz (Hermos) River. Besides its location in a fertile plain with ample water resources, its proximity to Belkahve Pass provides the site with an easy access to the Aegean littoral. Indeed, this natural pass still serves as one of the main routes linking the coastal zones with the Central Anatolian hinterland.

Ulucak is the only site in Western Anatolia where all the Neolithic sequences beneath the Chalcolithic occupation have been well defined archaeologically.¹ The Neolithic occupation is designated by level VI through level IV. Dated to the first half of the 7th millennium BC (6800–6500 cal BC), level VI is the earliest occupation at the site. It is represented by two post-wall structures with lime plastered red painted floors and several fire-related installations flanking them. No pottery or any other clay objects

were found from this earliest occupational level. Level V is dated to the second half of the 7th millennium BC (6500–6000 cal BC), and is characterised by post-wall dwellings, while level IV (6000–5800/5700 BC) consists of mud-brick houses on stone foundations. Although building techniques and spatial organization of the houses have been changed from level V to level IV, material culture suggests strong continuity between the two levels. More precisely, level IV reflects a developed form of Neolithic way of life both in terms of material culture and subsistence. The most prominent feature of level IV is the red slipped burnished wares. They represent more than 80% of the total ceramic assemblage from level IV while the rest is represented by cream slipped burnished wares, coarse wares, grey wares with mostly impressed decoration and painted wares. As regards to fabric texture sixty-three percent of the total ceramic assemblage from level IV is organic tempered (mainly chaff) although mineral tempering is dominant among those from level V. Clay figurines, sling bullets, bone implements, flint and obsidian tools, pintadera and stone axes are among the other finds from this occupational phase.

Level IV with several superimposed building phases ended with a conflagration around 5800/5700 BC, and what follows this catastrophe is the focus of this paper. It is in this period that the Neolithic material culture, which was an outcome of the gradual development starting from the 7th millennium BC onwards, abruptly disappeared at Ulucak. In fact, most of the Neolithic sites in the region, if not all, had been abandoned around 5700 BC, as is clearly shown by the excavated sites in and around the İzmir region, such as Yeşilova, Ege Gübre, and Çukuriçi.² Although the dynamics lying behind this phenomenon are yet to be solved, a sharp break in material culture between level IV and level III in Ulucak is obvious, as discussed below.

Contextual setting and dating

In contrast to the substantial mud-brick dwellings of level IV

representing the Late Neolithic period, architectural traces of the Chalcolithic occupation (level III) at Ulucak are quite flimsy. This Chalcolithic period is mainly known from Grid O13, although pot sherds particular to this period were also found in disturbed contexts from several other trenches. Grid O13 beneath the EBA II levels yielded no architectural remains in the 1.70 m thick deposit (Fig. 52.2). At the bottom of this fill, two pit-like features had been dug into the tumble of mud-brick walls of level IV, along with L-shaped stone foundations consisting of a row of stones with mud traces, and three badly preserved silos (Fig. 52.3). It has recently been clarified that these features represent the latest phase of the Chalcolithic occupation since two further sub-phases which partly cut Late Neolithic houses have been uncovered in the course of excavations undertaken in 2013 (Fig. 52.4).



Figure 52.1. Map of Central-Western Anatolia locating Ulucak.



Figure 52.2. Chalcolithic fill in Grid O13.

Table 52.1. AMS results from level III at Ulucak.

<i>Periods</i>	<i>Laboratory reference</i>	<i>Nature of sample</i>	<i>Conventional age</i>	<i>2 sigma calibration</i>
Level III	Beta-345843	Bone collagen	6710 ± 40 BP	5670-5560 cal BC
Level III	Beta-345842	Bone collagen	6570 ± 40 BP	5610-5480 cal BC
Level III	Beta-345841	Bone collagen	6540 ± 40 BP	5600-5470 cal BC
Level III	Beta-345840	Bone collagen	6630 ± 40 BP	5620-5510 cal BC

Discovery of more than 18,000 pot sherds, along with a high number of lithics and animal bones from the deposits lying between the EBA II and the Chalcolithic led us to think that this fill had to have been artificially created by the inhabitants of the EBA II occupation. Therefore, this fill found in the EBA II level must be a secondary deposition of Chalcolithic material from elsewhere on the mound used to flatten the area for construction activities during the EBA II. No radiocarbon results from the Chalcolithic occupational layers have yet been obtained. However, four AMS radiocarbon dates from the Chalcolithic fill calibrate between 5670–5470 cal BC ([Table 52.1](#)). Here, the material evidence from the fill will be presented as the recent finds are still under examination.

Pottery

Five different ware types have been defined in the ceramic assemblage. Among them are brown, grey/black, red, reddish brown and cream slipped wares, of which the brown and grey/black slipped wares are the most dominant. The paste is mostly brown, grey and black. This dark appearance of the fabric is generally due to poor firing. The percentage of organic and mineral inclusions is more or less the same in all the wares. They are either chaff, grit, or both chaff and grit tempered. It is interesting to note that carbonized chaff is visible in most of the sherds. Almost 60% of the ceramics are unburnished; highly burnished ceramics make up less than 7% of the total assemblage. Therefore, course ware is a characteristic of the Ulucak assemblage. This appears to show sharp contrast with the assemblage from Gülpınar, where a high percentage of ceramics is well-burnished.³



Figure 52.3. Flimsy architectural remains from level III in Grid O13, lying on the tumble of the mud-brick walls of Level IV.

Decoration is not common and applied to less than 1% of the

total ceramic assemblage, although it is one of the most distinctive features of the ceramics from the period in question. Among the various decorative techniques are channelling, pattern burnishing, and incision with or without white and red paste fill (Fig. 52.5). Nevertheless, only pattern burnishing has not been attested in earlier Chalcolithic layers in Ulucak, and this raises a question whether pattern burnishing is a rather later component of the Chalcolithic pottery. Channelling is the most common type and was used both on the interior surface of plates and outer surface of jars, while pattern-burnishing is only seen on the interior surface of plates and open bowls. Bases with mat impressions, strainers, and horned handles are other distinctive features of the assemblage (Fig. 52.6). Plates with thickened rim, shallow and deep bowls with straight walls, carinated and spherical bowls, and hole-mouth jars are common shapes.

In terms of shapes and decorative patterns, the pottery from Ulucak displays certain similarities with those of Kumtepe IA, Beşik-Sivritepe, and Gülpınar in the Troad in North-Western Anatolia, Yeşilova, Ege Gübre, Limantepe and Çine-Tepecik in Central-Western Anatolia, and Emporio and Tigani in the Eastern Aegean islands. However, the total absence of bowls with uprising handles, high pedestals with window-like openings, long conical legs, white painted decoration and relief decoration such as finger impressions on plastic bands and decorated handles is to be stressed.

Other finds

Two clay figurines from level III are completely different from those found in Late Neolithic contexts. One of them is particularly worth mentioning. It is coated with dark brown slip and has small breasts, exaggerated buttocks and pedestal-like feet (Fig. 52.7). Similar examples are known from several sites in the Balkans and have often been placed to the first half of the 6th millennium BC.

Marble was very sporadically attested in the Neolithic

settlement in Ulucak, while more than 90 fragments of bracelets have been found so far in Chalcolithic levels (Fig. 52.8). In fact, marble bracelets are widespread in Western Anatolia and the Aegean islands during this period; examples are seen at Orman Fidanlığı, Aktopraklık, Emporio and Ayio Gala.⁴ Their distribution in Western Anatolia has been related to the first half of the 6th millennium BC. Whether marble bracelets were imported to Ulucak in the form of raw material or as finished products is unknown. Exploitation of local sources, however, cannot be excluded. Our survey suggests that the nearest marble source is located in Çaldağ, 35 km north-east of Ulucak, and is also the nearest source for flint. Besides several circular and oval shaped beads, which appear to be made of marine shell, *Glycymeris* shell bracelets are also common. Although a number of *Spondylus* bracelets were found in Neolithic levels, none has been recorded in the Chalcolithic occupation at Ulucak.



Figure 52.4. The earliest pisé building from level III in Grid O13 which cuts the foundations of a dwelling from level IV.



Figure 52.5. Decorated pottery from level III.



Figure 52.6. Pot sherds from level III.



Figure 52.7. A clay figurine from level III.

The percentage of obsidian artefacts from level III is

substantially less than that of the Neolithic levels, and represents about 4% of the total lithic assemblage from the Chalcolithic deposits. Although technological analysis of lithics is still ongoing, XRF analysis proves that the obsidian originated on Melos.

It is interesting to note that numerous galanite lumps have been identified from the Chalcolithic fill. No galanite objects were found from this period, although galanite pendants are known from the earliest Neolithic occupation and onwards at Ulucak.

Subsistence

No cereal or any other plant remains have been recorded so far from Chalcolithic deposits, except for one einkorn kernel that was accidentally included as temper in a ceramic sherd. Preliminary analysis of the animal bones, however, indicates that there seems no considerable change between levels IV and III, although the amount of cattle and fallow deer slightly increased during the Chalcolithic period. Besides a certain number of molluscs, the discovery of the jawbone of a gilt-head bream is further evidence for coastal contacts of the Chalcolithic inhabitants of Ulucak. Direct and indirect evidence shows that the Chalcolithic inhabitants of Ulucak had a mixed economy based on crop cultivation, animal herding, hunting and exploitation of marine resources.



Figure 52.8. Fragments of marble bracelets from level III.

Conclusions

Material evidence from level III in Ulucak clearly suggests that the Chalcolithic inhabitants had completely different cultural traits than those found in level IV representing the Late Neolithic period according to Western Anatolian chronology, although they may have exploited the same sources for obsidian, flint and galanite. Planning and construction techniques of buildings, pottery and symbolism, as shown by figurines, display a significant change from the earlier occupational levels of the mound. This abrupt change appears to have taken place around 5600 BC at Ulucak. There is no doubt that new radiocarbon dates taken from the floor of the earliest building of level III, which partly destroyed the dwellings of level IV, will provide us a more reliable date for the beginning of the Chalcolithic at Ulucak. However, the early date of the occupation is also supported by the relative chronology of a clay figurine and marble bracelets.

Where these dark-faced burnish wares originated, and what factors caused the disappearance of red-slipped Neolithic wares is still a complex issue. What needs to be clarified is apparent lack of a cultural break at Ulucak around 6000 BC, or a change in material culture such as the introduction of painted wares, as has been attested elsewhere. Level IV in Ulucak can best be explained by the continuation of the preceding material culture including subsistence patterns. The real break is seen somewhere in the mid-6th millennium BC, which indicates that there is a short time gap between the Neolithic and the Chalcolithic occupations. Accordingly, the term Early Chalcolithic for the ceramic horizon following the short gap at Ulucak seems appropriate.

Besides Ulucak, radiocarbon dates from various sites in Western Anatolia provide different dates for the horizon of dark-faced Chalcolithic pottery with pattern burnishing and channelling, ranging from 5300 to 4370 BC. This implies that the horizon with this ceramic assemblage may well have further sub-periods. The lack of certain shapes or decorations in Ulucak, for example, suggests that a regional or chronological differentiation has not yet been solved. What seems to be increasingly clear is that classification of shared and individual traits of this cultural horizon at each site, together with absolute dates, will shed light on more precise criteria for its periodisation and regional characteristics.

Notes

- 1 Çilingiroğlu *et al.* 2012.
- 2 Derin 2012; Derin *et al.* 2009; Horejs 2012; Sağlamtimur 2012.
- 3 Takaoğlu and Özdemir 2013.
- 4 Ay-Efe 2001; Hood 1981; Karul and Avcı 2013.

The Chalcolithic of Coastal Western Anatolia: A view from Liman Tepe, İzmir

Rıza Tuncel and Vasıf Şahoğlu

Introduction

It has been suggested that the Chalcolithic of Anatolia¹ in general represents the “Millennia in the Middle”.² This term is perhaps all the more true for Western Anatolia, where our knowledge of the period has been at best patchy for a very long time. It is only with the more recent investigations that details concerning the Chalcolithic cultures of the region are starting to be fleshed out,³ although there is much that still remains poorly understood. This article aims to present a brief summary and a preliminary analysis of the investigation of Chalcolithic deposits at Liman Tepe, where early evidence for metallurgy, extensive overseas contacts and active participation in wider exchange networks mark it as an important site for a little-known period of prehistory.

Liman Tepe is located in the central part of the Western Anatolian coastline, *en route* to the bay of İzmir to the east (Fig. 53.1). The site represents the prehistoric habitation of the Ionian city of Klazomenai. Although the existence of Mycenaean deposits at the site was well known in the first quarter of the 20th century,⁴ it was E. Akurgal who first mentioned EBA pottery from the site.⁵ Excavations at the site were started by G. Bakır as part of

the Klazomenai excavations between 1978 and 1980.⁶ In 1992, a new project was initiated at the site by H. Erkanal, forming part of the Izmir Region Excavations and Research Project (IRERP).⁷

The site is located on a headland that juts out towards the Aegean Sea to the north, with two bays extending towards the south, flanking the site (Fig. 53.1). Recent discoveries by the Klazomenai excavation team has proved that the EBA site spread over a much wider area than previously thought, making it one of the largest EBA centers in the Aegean region.⁸ Although pottery evidence uncovered from secondary deposits suggests habitation at the site from at least the Early Neolithic period (in Aegean terms),⁹ the earliest stratified deposits date to the Chalcolithic period (Liman Tepe level VII)¹⁰ and it is with these deposits that this article concerns itself.

Since the site today is bisected by the İzmir–Çeşmealtı road that runs in an east–west direction, trenches which represent a continuous excavation area to the north of the road have been collectively called the “Northern Excavation Area” (NEA) and those to its south the “Southern Excavation Area” (Figs 53.2–3). The topography of the site during the EBA suggests that the highest point of the settlement was located at the northern end of the headland. This “hill” gradually sloped down towards the south and the east, where it reached its lowest point close to the centre of the NEA, and then gradually rose again. Thus, for a considerable period of time, the settlement was formed on terraces built to obtain relatively flat ground for building activities. The investigations at the northernmost accessible area of the NEA have shown that the bedrock similarly slopes down from the northwest to the southeast. In fact, the south-eastern deposits in this area, where some of the better-preserved architecture of the Middle Chalcolithic period was encountered, lie on earlier, still unexcavated deposits.

The Chalcolithic stratigraphy and architecture of

Liman Tepe

The first realisation of the presence of a Chalcolithic settlement at Liman Tepe was during the early years in the excavations of the 1990s, although these deposits lacked a clear context. One deposit containing purely Late Chalcolithic pottery was found beneath one of the floors of an EBA 1 long-house at the southern part of the NEA (Fig. 53.3.1). This was clearly a secondary deposit, which represented earth dug elsewhere on the site during the EBA 1, and laid in one of the houses to form the foundation for a new floor.¹¹ Another deposit excavated in 1994 came from beneath the ancient base of a LBA well (Fig. 53.3.2).¹² Although its context is less than clear (being beneath the water table and not associated with any architecture), if it is a primary context, it signals the presence of Late Chalcolithic deposits in the southern part of the NEA. Indeed, if the settlement plan of Late Chalcolithic Liman Tepe is analogous to that known from Bakla Tepe, the settlement must have extended over a considerable area in what can be defined as an open settlement plan, with free standing structures and open spaces in between.¹³

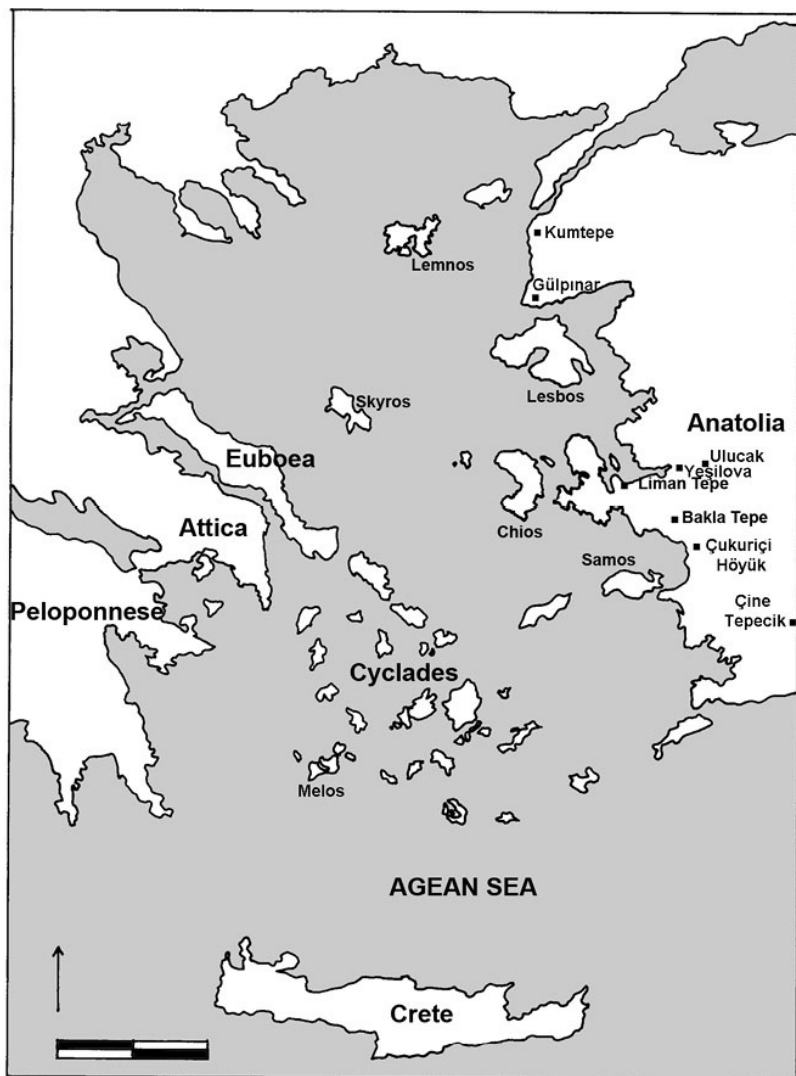


Figure 53.1. Map of the Aegean region with main West Anatolian sites mentioned in the text.

The best evidence for stratified Chalcolithic deposits comes from the northern part of the NEA (Fig. 53.3.3). As mentioned above, the construction of terraces at least as early as the initial stages of the EBA has destroyed part of the Chalcolithic deposits. Investigations undertaken between 2005 and 2006 to the north of

an EBA 1 terrace wall (the northernmost excavation trench at Liman Tepe) have revealed deposits extending from the Middle Chalcolithic¹⁴ to early EBA 1 (Fig. 53.4). The northern extension of these deposits, however, were also destroyed by a deep cut all the way to the bedrock (Fig. 53.4.6), made during Roman times, which was later filled and contained burials at its successive levels topped by a Roman burial complex which was immediately beneath the topsoil. Thus, the limited extent of Chalcolithic deposits makes their interpretation difficult.

The characteristics of the Middle Chalcolithic settlement is elusive. Many of the deposits in the western part of the excavation area were close to the bedrock (which apparently also rose towards the west) and were shallow deposits containing little pottery. In the eastern part of the excavation area, deposits were more substantial and architecture was better preserved (Fig. 53.5). A wall, though incompletely excavated (as it continued beyond the bounds of the excavation area as well as beneath Late Chalcolithic deposits not yet excavated), is the oldest architectural feature so far uncovered. It is quite substantially built of large stones and runs in a northwest-southeast direction (Figs 53.4–6). Clues for the superstructure of the wall were lacking. Above this structure was a circular feature, constructed of medium-/small-sized stones and insubstantial in its dimensions (Figs 53.4–6). Although much pottery and abundant small finds were recovered from all these deposits, their context remains unclear for the time being due to their small size or incomplete exposure of the architectural elements with which they are associated.

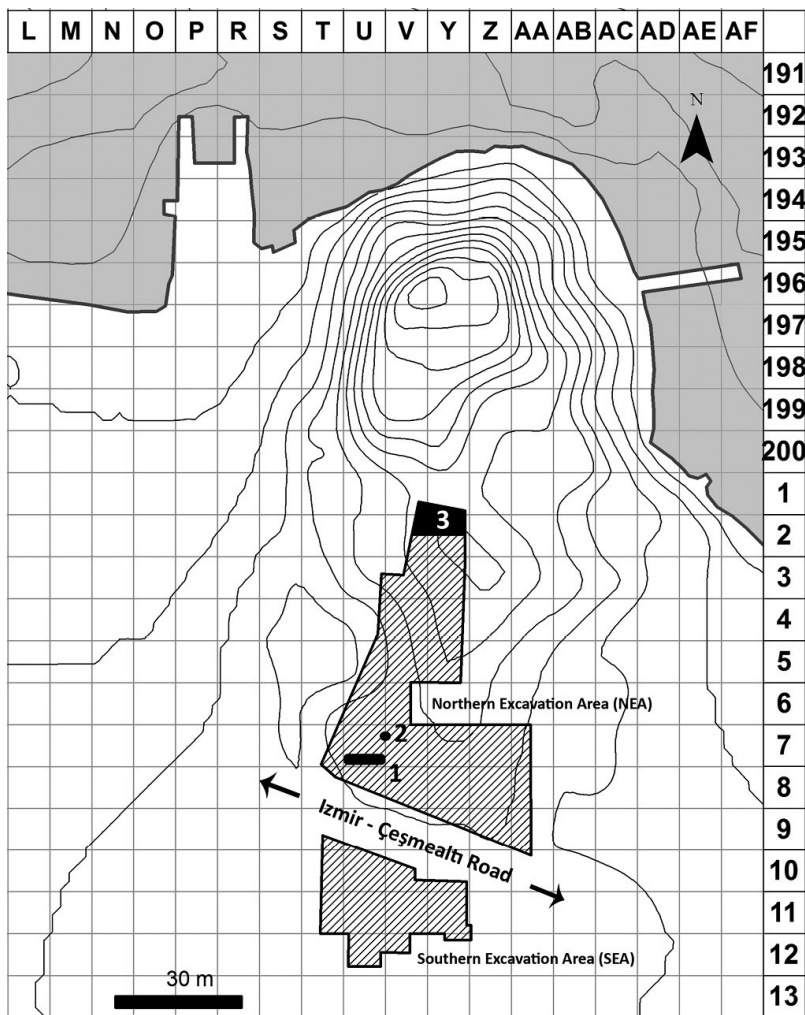


Figure 53.2. Topographic map of Liman Tepe with the location of Chalcolithic finds indicated (1. Fill containing Chalcolithic finds beneath the floor of an EBA I long house; 2. Chalcolithic layers beneath the LBA well; 3. The main area of the Chalcolithic stratified deposits).



Figure 53.3. Aerial photograph of Liman Tepe with the location of Chalcolithic finds indicated (1. Fill containing Chalcolithic finds beneath the floor of an EBA I long house; 2. Chalcolithic layers beneath the LBA well; 3. The main area of the Chalcolithic stratified deposits).

As in many other excavated settlements of the Chalcolithic, there existed a substantial gap between the Middle and the Late Chalcolithic deposits (see below, *Radiocarbon dates and chronology*), although this was not all too clear during the time of excavation. No complete house plans could be discerned for the Late Chalcolithic period as well. The severely burnt remains of a structure of wattle-and-daub (“burned house”) nevertheless provided clues to the construction techniques of this period (Figs 53.4–5, 7). The same technique is also evidenced at Bakla Tepe. As in Bakla Tepe, a single line of medium- to small-sized stones seem to have formed the foundation for the superstructure of wattle and daub. It is likely that some of the posts were not inserted directly into the ground but were supported by the foundation stones since not many postholes were discernible during excavation. The severity of the burning preserved the impressions of branches and

other plant material that was used in the construction of both the roof as well as the walls. A textile impression found in this debris is a unique find (Fig. 53.8). Many carbonised grains – probably packed in sacks – were found *in situ* on the floor of this house.¹⁵ The burning seems to have been sudden and many restorable vessels as well as an abundance of small finds were uncovered beneath the debris (Fig. 53.7).

Mud-brick was also used in construction. In the western part of the excavation area, part of a small rectangular structure of mud-brick was revealed (Figs 53.4–5, 7). Although poorly preserved, it attests to the use of different construction techniques at the site.

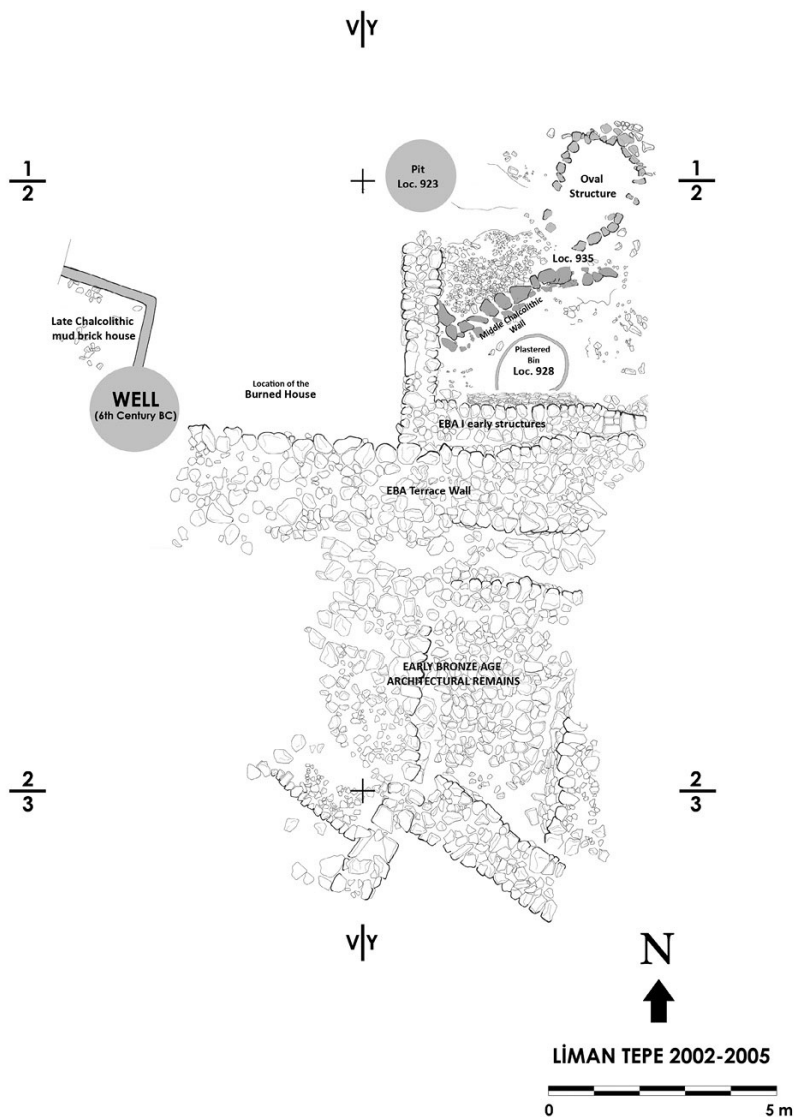


Figure 53.4. Plan of the main area containing Chalcolithic deposits at the northern part of the NEA.

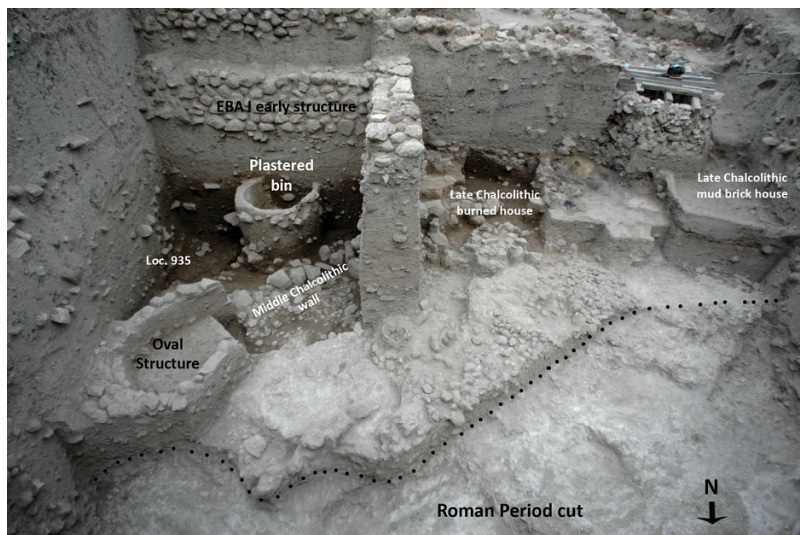


Figure 53.5. Chalcolithic remains and stratigraphy at the northern part of the NEA.



Figure 53.6. Chalcolithic remains and stratigraphy at the north-eastern part of the NEA.



Figure 53.7. Late Chalcolithic remains at the northwestern part of the NEA. The “Burnt House” is at the centre of the picture with the remains of a rectangular mud-brick structure stratified above it.



Figure 53.8. Textile impressions preserved on the wattle-and-daub debris of the “Burnt House”.

A round plastered bin is an interesting feature belonging to this period (Figs 53.4–6). It was found filled with secondary deposits which also included some painted Late Chalcolithic pottery (Loc. 928). The most interesting find in this context was a human skull placed at the bottom of the bin lying on its side. This may indicate a special treatment of the skull. However, the preliminary analysis of the context does not associate it with any special finds which may point to a “ceremonial” or a “special” deposit, although this may have indeed been the case. Above these deposits, were those which could be termed transitional to the EBA as well as EBA-early deposits (Figs 53.4–5). This period sees the construction of the terrace wall (extending in an east-west direction) mentioned above, as well as another wall running perpendicular to and abutting the former. This type of construction recalls the much better examples of EBA I long-houses excavated in the southern part of the NEA (Fig. 53.3).¹⁶

Until recently, solid architecture dating to the Middle Chalcolithic was lacking in Western Anatolia and this phase was believed to be characterised by wattle and daub architecture of a flimsy construction. The excavations at Gülpınar have started to change that picture.¹⁷ Now we have substantial rectangular architecture dating to the late 6th–early 5th millennium BC from this site.

Our best evidence for the architecture of the Late Chalcolithic (second half of the 4th millennium BC) in Coastal Western Anatolia comes from Bakla Tepe, with its grill-plan and apsidal houses with a wattle and daub superstructure.¹⁸ This technique seems to have been shared among several other sites, but we should also remember the variability observed amongst regions such as Kumtepe IB,¹⁹ which has rectangular structures, or Beycesultan with its megaroid buildings.²⁰

Chalcolithic pottery from Liman Tepe

The earliest secure stratigraphic evidence we have for habitation

at Liman Tepe dates to the Middle Chalcolithic period. This can be equated with Tigani II–III, Kumtepe IA, Gülpınar, and Beşik-Sivritepe. The finds directly above the bedrock include fragments of incised pedestals (Fig. 53.9a), handles with applied pellet decoration²¹ (Fig. 53.9b), horned handles belonging to open vessels (Fig. 53.9c),²² many fragments of pattern burnished ceramics²³ (Fig. 53.9d–e), as well as pithos sherds with relief bands decorated with *pointillé* or impressed decoration (Fig. 53.9f).

Beneath the small oval building described below, were the remains of a floor (Loc. 953) where a handle with incised decoration (Fig. 53.10a), a bowl with pellet decoration applied on the interior (Fig. 53.10b), small jars with vertical neck, biconical body and flat base with vertical handles joining the widest part of the body with the middle of the neck (Fig. 53.10c), another small jar with incurving rim and biconical body (Fig. 53.10d) and cheese-pots (Fig. 53.10e) were found.

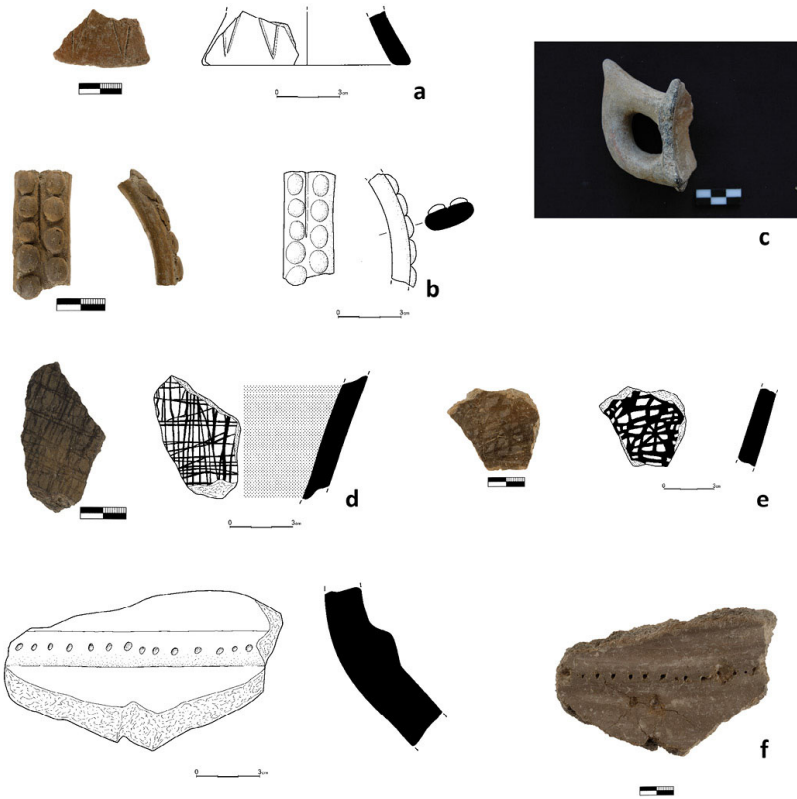
The area around the small oval building unearthed at a slightly later level (Loc. 935), yielded pottery including fragments of pattern burnished bowls and jars (Fig. 53.11a–b), sometimes coupled with incised decoration (Fig. 53.11c), a large body and base fragment of a brown burnished jar/jug (Fig. 53.11e), cheese-pots (Fig. 53.11f), and a small jar with vertical neck, biconical body and flat base with vertical handles joining the widest part of the body with the middle of the neck (Fig. 53.11g). From the same phase, pattern burnished bowls, tab handled jars, bowls with vertical rim and incised decoration beneath the exterior of the rim, bowls with vertical handles ending up in conical or mushroom-shaped heads²⁴ (Fig. 53.13e) as well as bowls with rims decorated with white paint on the interior are found. This context represents the latest Middle Chalcolithic level at Liman Tepe.

In the later phases which can be dated to the Late Chalcolithic, the pottery repertory is characterised by the presence of black burnished beak-spouted jugs with white painted decoration and similarly decorated rolled rim bowls sometimes bearing horned or

plain string-hole lugs. The “burnt house” (Figs 53.4–5, 7) mentioned above was severely destroyed by fire and contained many *in situ* finds. Another roughly contemporary context is a pit (Loc. 923) which contained carbonised remains, animal bones, a quite peculiar vessel (jug) having an elongated body with pointed ends, a neck that centrally rises from the body, with a probably vertical handle linking the neck with the body (Fig. 53.12a), black burnished jugs, some with white painted decoration (Fig. 53.12b, d–e) and a brown burnished bowl with horizontal string-hole lug on the body (Fig. 53.12c). This looks like a special function pit rather than a simple garbage pit.

From a contemporary plastered bin (Loc. 928) (Figs 53.4–6) come various rolled rim bowls with white painted decoration on the rim (Fig. 53.13c–d). More examples of white painted bowls (Fig. 53.13a–b) come from similarly dated contexts. The pottery typology for the Late Chalcolithic at Liman Tepe largely conforms with that observed from Bakla Tepe,²⁵ with rolled rim bowls showing a similar development. Towards the end of the Late Chalcolithic, rolled rims tend to become shorter and white painted decoration disappears. In this context, we should perhaps mention that in Beycesultan, the amount of white painted decoration significantly drops in the later phases of the Late Chalcolithic sequence.²⁶ Similar development is observed at Aphrodisias.²⁷ In terms of pattern-burnished wares, Aphrodisias tends to have more than Beycesultan in its earliest phases, probably indicating an earlier date for the earliest Late Chalcolithic deposits.

In the Middle Chalcolithic period, the entire Western Anatolian region shares a great many traits in common, ranging from wattle-and-daub architecture to a pattern burnished tradition. The great similarity in the shapes and intricate decorative patterns is noteworthy. The pattern burnished tradition seems to slowly give way to white painted decoration.



*Figure 53.9. Various pottery from the earliest Middle Chalcolithic deposits (a: 28463/1; b: 28447/2; c: 32078/1; d: 28429/5; e: 32080/2; f: 32078/2).*¹

¹ All the finds published in this article were excavated in 2005 and thus the inventory numbers are preceded by LMT 05 in the excavation reports.

It is apparent that the sequence of archaeological discoveries greatly influenced the interpretative frameworks, whereby the origin of certain traits is pinned. Although the white painted wares first excavated at Beycesultan and later complemented by D. French's surveys in the area,²⁸ as well as later survey work carried out by R. Meriç²⁹ resulted in the creation of a "Beycesultan Late Chalcolithic", it is clear that this horizon extends well into the Akhisar-Manisa region and further. White painted pottery is in fact found in the Eskişehir region³⁰ as well as at the possibly

contemporary settlement at İköztepe.³¹ It may be significant that Emporio VII–VI has produced some examples, which Hood regarded as probable imports.³² The rarity of white-painted decoration at Kumtepe IB is possibly a chronological signifier that layers belonging to the Late Chalcolithic start later than the sequence found at Liman Tepe, Bakla Tepe, Aphrodisias and Beycesultan. The excavations at Bakla Tepe³³ and Liman Tepe have shown that this mingling of what is regarded as “Kumtepe IB” type pottery with “Beycesultan” decorative elements is actually characteristic of the İzmir region.

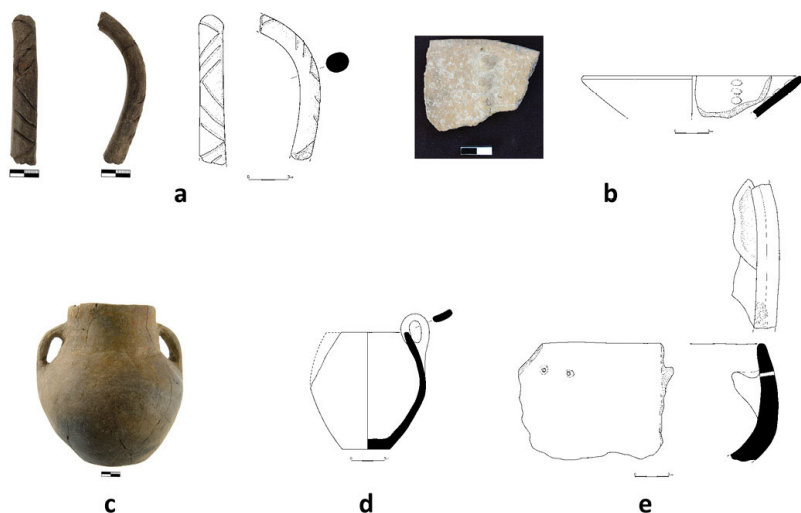


Figure 53.10. Selected pottery from the Middle Chalcolithic deposit Loc. 953 (a: 28466/8; b: 28425/15; c: 28421/7; d: 28425/5; e: 28425/4).

One should nevertheless be wary when trying to make correlations simply on similarities in pottery, especially when our data comes from widely dispersed sites. The hiatus and the problems it harbours will be outlined below. This partly stems from the lack of radiocarbon dates from many Middle/Late Chalcolithic sites, as well as the nature of archaeological deposits from which the data derive. Although pottery types are commonly

used in dating sites, we still have insufficient evidence for the lifetimes of many pottery types, as well as regional variations/styles during the Chalcolithic.

Ground and chipped stone industries at Chalcolithic Liman Tepe

Chipped stone

The Middle Chalcolithic levels at Liman Tepe yielded abundant amounts of obsidian of Melian origin. Various tools, arrowheads and perhaps more importantly, debris, indicate that the tools made of Melian obsidian were actually produced on site, rather than being brought as finished products (Fig. 53.14).

From all Late Chalcolithic levels at Liman Tepe obsidian finds are many. Analyses suggest that a large portion of the obsidian tools and debris are made of Melian obsidian. This parallels the situation at Aphrodisias, where most of the Late Chalcolithic obsidian stems from Melos.³⁴

The preponderance of Melian obsidian in Western Anatolia, even as far as Aphrodisias is perhaps not very surprising, but with the beginning of the Early Bronze Age, changes in housing, settlement structure and the construction of fortifications evidenced at many sites point to drastic changes in community organisation at this time. What may have posited this change needs to be considered further, but the simpler exchange mechanisms at play during the Chalcolithic seem to have broken down.

The utilisation of and increased reliance on metals during the EBA most probably caused a change in interaction networks as well as increased opportunities for building wealth (see below *Metals and metallurgical activities*).

It has been suggested that exchange in stone tools as well as other items was mainly carried out on a “down-the-line” basis or through the activity of pastoralists and nomads.³⁵

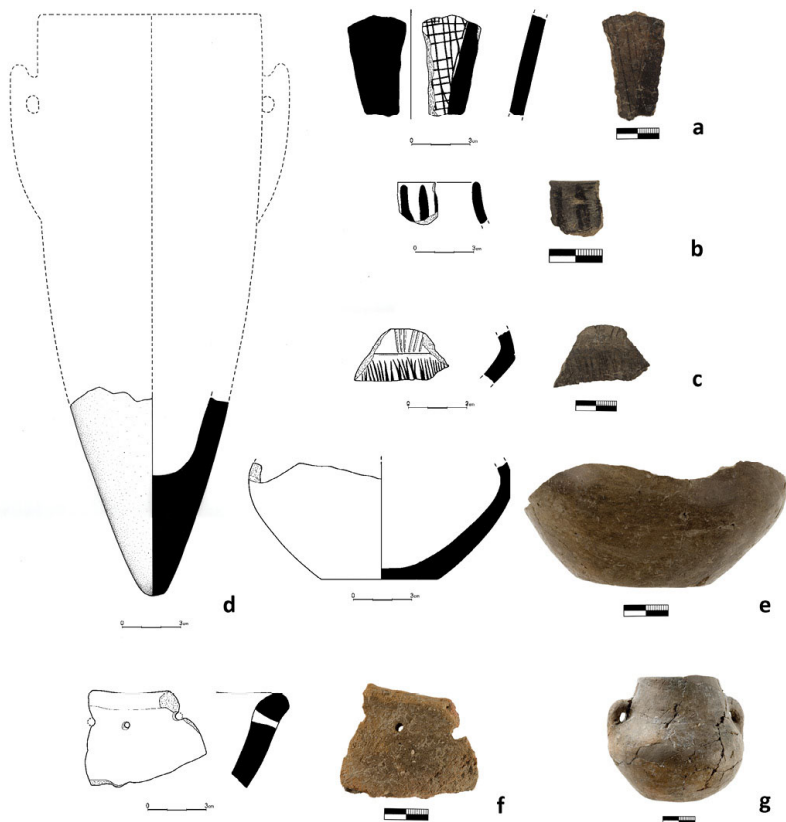


Figure 53.11. Marble conical beaker (d) and selected pottery (a-c, e-g) from the Middle Chalcolithic deposit Loc. 935 (a: 28440/2; b: 28452/2; c: 28452/3; d: 28388/5; e: 28452/1; f: 28454/4; g: 28388/6).

Ground stone

Although ground stone implements such as pestles, mortars and grinding stones are abundant, a special mention must be made of an important find from Loc. 935. This is a large fragment of the pointed base of a marble beaker (LMT 28388/5) ([Fig. 53.11d](#)). The marble beaker from Liman Tepe clearly indicates that exchange mechanisms were strong during the Middle Chalcolithic period. The production of marble vessels within the Akhisar-Manisa region is well known from the marble workshop at Kulaksızlar,

which specialised in the production of conical beakers, bowls and Kilia figurines.³⁶ The recent discovery of a marble bracelet workshop at Kanlıtaş (Eskişehir)³⁷ dating to the Chalcolithic period possibly places West Anatolia at the hub of exchange for marble products during this early period.

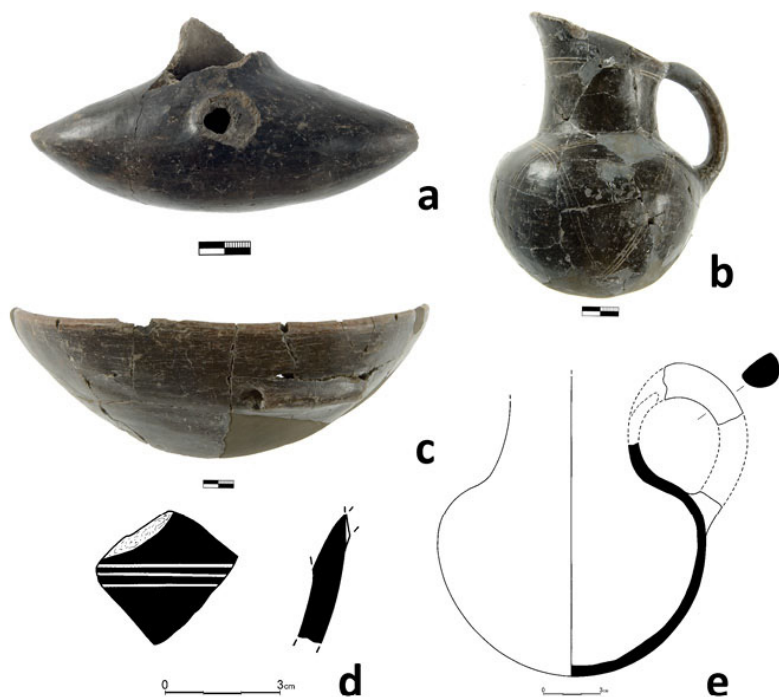


Figure 53.12. Selected pottery from the Late Chalcolithic deposit Loc. 923 (a: 28347/6; b: 28351/2; c: 28351/6; d: 28347/8; e: 28347/7).

The marble beaker from Liman Tepe comes from a context which included *pisé* pieces, a high number of marble fragments and debris from obsidian tool manufacture (Fig. 53.14). Whether the marble pieces that come from the same context represent production activity will have to await further study, but we need to consider the fact that the production at Kulaksızlar, undoubtedly contemporary, did not manufacture its products only for local consumption but for exchange.

Similar beakers are well known from Kephala,³⁸ and it has been pointed out that, in general, production of marble vessels, as well as figurines, is a well-known characteristic of the Early Cycladic culture. Although the Kephala example, dated to the Aegean Final Neolithic period, is the earliest securely dated example from the Aegean islands, Coleman himself pointed out that the vessel in question is most probably not locally manufactured.³⁹

Several other examples of this type are known from the Cyclades as well as the Western Anatolian region, with one purported to be from Naxos,⁴⁰ one from Kumtepe (said to have come from level IC, but the possibility that it may have been mixed from earlier levels has been pointed out)⁴¹ and two from Beşik-Sivritepe,⁴² unfortunately also without a secure context. The other North-Western Anatolian site to have produced a marble conical beaker is Demircihüyük where it is said to have come from a fill containing Late Chalcolithic pottery.⁴³ Several marble vessels, including conical beakers, are also known from Tigani.⁴⁴ The earliest of these is said to be from Tigani II–III,⁴⁵ the rest come from Tigani IIIa (one example)⁴⁶ and three from Tigani IV.⁴⁷ More recent marble vessel finds also come from Çine-Tepecik, as reported by Günel in this volume. If the dating of the Liman Tepe context is as proposed here, this is one of the earliest securely dated vessels found in a stratigraphic context in Anatolia. Although the production of marble vessels and figurines has always been closely linked with the Cycladic Islands, Renfrew had rightly suggested that Western Anatolia also probably had a flourishing marble production industry.⁴⁸ The Liman Tepe example is most probably an import from the Kulaksızlar area or some other undiscovered marble workshop located in West Anatolia.

Metals and metallurgical activities at Chalcolithic Liman Tepe

Due to the small size of the excavated area, evidence for metal working and metallurgical activities at Liman Tepe during the Middle Chalcolithic period is scant but nevertheless significant. A much-corroded piece of a probable copper object (LMT 28453/2) which comes from a secure context (Loc. 959) is a good indication that metallurgical activities were already underway at Liman Tepe during the 5th millennium BC. The İzmir region is rich in its metal deposits⁴⁹ and there is more evidence for metallurgical activities at the site during the Late Chalcolithic period. The advanced level of metallurgy is already evidenced at Bakla Tepe⁵⁰ and as excavations progress, more evidence will certainly emerge from Liman Tepe as well.

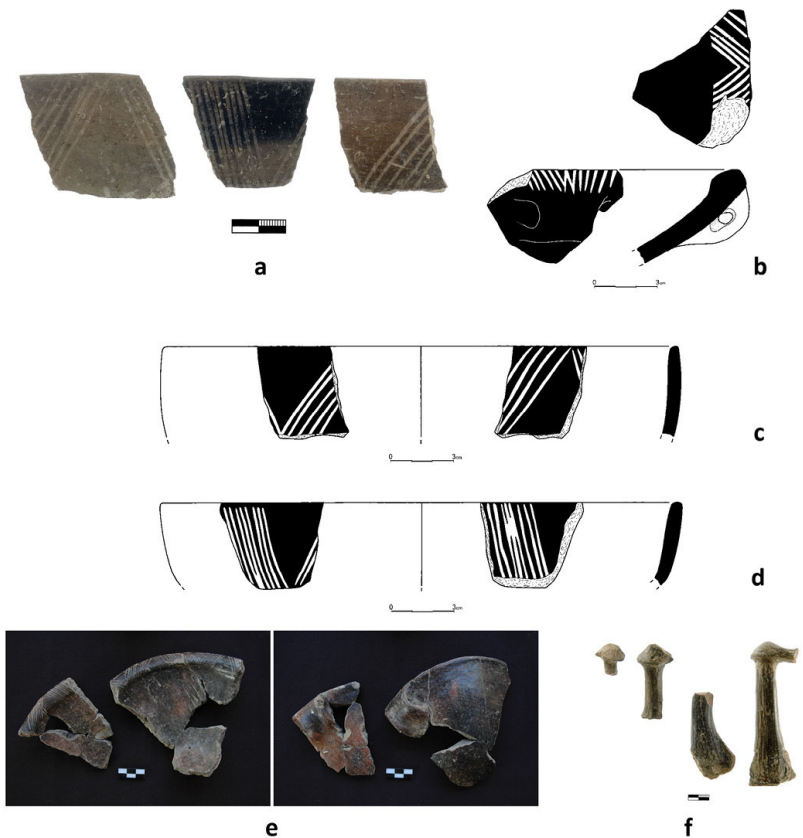


Figure 53.13. Various Pottery from the Late Chalcolithic deposits (a:

(from left to right) 32027/5, 28353/1, 28350/2); b: 28325/2; c: 28350/2; d: 28353/1; e: 28368/7 (left) and 28400/9 (right); f: (from left to right) 28416/2, 28386/1, 28349/3, 28366/1)

Radiocarbon dating and the chronology of the Chalcolithic period at Liman Tepe

The Izmir Region Excavations and Research Project (IRERP) initiated a radiocarbon dating program to absolutely date prehistoric deposits from wide ranging periods (from the Chalcolithic to the end of the Bronze Age) from the sites it has excavated so far (Bakla Tepe, Liman Tepe and Çeşme-Bağlararası). [Table 53.1](#) summarises a preliminary analysis of results obtained from the Chalcolithic deposits from Liman Tepe.



Figure 53.14. Obsidian artefacts from Liman Tepe.

Wherever possible, samples of short-lived specimens were selected (carbonised grain) from sealed deposits. The Middle Chalcolithic deposits dated so far have provided the following results: [51](#) ca. 4600–4400 (OxA-22860) BC, ca. 4330 BC

(OxA-22861), *ca.* 4340-4175 BC (OxA-22857). One sample which has been radiocarbon dated to the EBA II (Ox-A 22863) must be a later contamination of the deposit (Fig. 53.15). Thus, there seems to be continuous habitation from about 4600 BC to roughly 4200 BC at Liman Tepe, after which was a considerable gap, lasting at least 600, maybe as much as 1000 years. Those samples coming from the collapse of the Late Chalcolithic “burnt house” (OxA-22854, OxA-22855, OxA-22856 and OxA-22868 as well as OxA-22859) show considerable homogeneity. The two sigma results suggest a date between 3300–3000 BC which places these deposits roughly contemporary with Kumtepe IB. A slightly earlier date is provided by the lower levels (fill of the plastered basin – Loc. 928), *ca.* 3600–3300 BC.

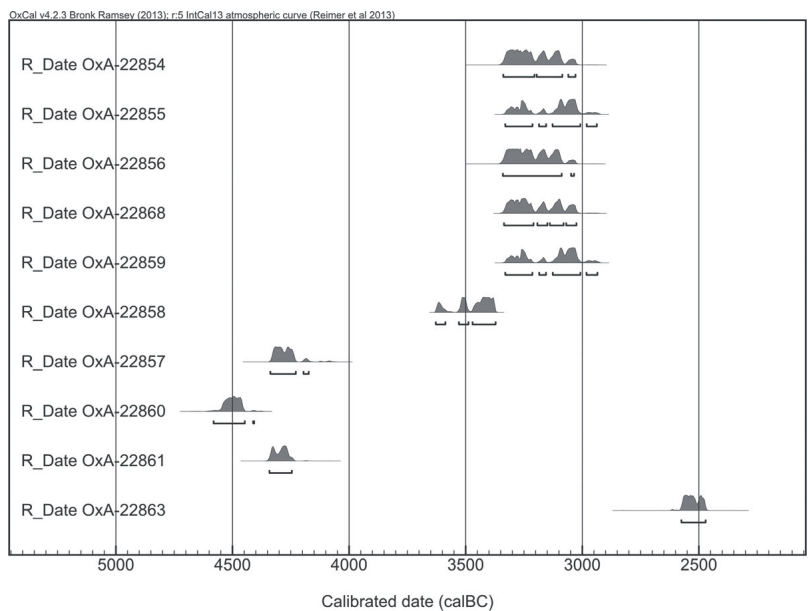


Figure 53.15. Distribution graphs for calibrated dates obtained from radiocarbon analysis from various Chalcolithic deposits.

Table 53.1. Radiocarbon samples and results from the Chalcolithic deposits of Liman Tepe.

Sample no.	Locus	Material	Period	Context	BP	SD	95.4% dates	
OxA-22854	L. 843	Carbonised grain	Late Chalcolithic	Burnt house	4477	28	3339	3029
OxA-22855	L. 880	Carbonised grain	Late Chalcolithic	Burnt house	4443	28	3331	2936
OxA-22856	L. 842	Carbonised grain	Late Chalcolithic	Burnt house	4483	27	3341	3032
OxA-22868	L. 917	Charcoal	Late Chalcolithic	Burnt house Roof collapse	4466	28	3336	3026
OxA-22859	L. 807	Carbonised grain	Late Chalcolithic	Uncertain	4442	28	3331	2935
OxA-22858	L. 928	Carbonised grain	Late Chalcolithic	Fill of the plastered basin	4697	28	3629	3372
OxA-22857	L. 934	Carbonised grain	Middle Chalcolithic	Structure 934 (Round structure)	5401	30	4339	4173
OxA-22860	L. 959	Carbonised grain	Middle Chalcolithic	Uncertain	5669	30	4584	4406
OxA-22861	L. 953	Carbonised grain	Middle Chalcolithic	Uncertain	5434	29	4343	4325
OxA-22863	L. 962	Carbonised grain	Middle Chalcolithic	Uncertain	4005	26	2576	2471

These dates, and the apparent gap between the Middle and the Late Chalcolithic period conforms to what is already known from many other sites, namely that sites with evidence for both periods seem to have been abandoned sometime after mid-5th millennium BC, to be re-settled sometime during the mid-4th millennium BC. This gap was first noticed by M. Özdoğan⁵² and later confirmed by renewed excavations undertaken by M. Korfmann and his team at Kumtepe and Beşik-Sivritepe.⁵³ The dates from Kumtepe IA and Beşik-Sivritepe are reported as 5000–4700 BC and 4700–4500 BC respectively. The dates for Kumtepe IB, on the other hand are given as 3300–3000 BC. This picture of a region-wide hiatus, however, is starting to change as more radiocarbon dates are being obtained from other sites. The Chalcolithic levels from Ege Gübre have already provided two dates that fall between 4000–3600 BC.⁵⁴

Conclusions

The brief discussion of the excavations and preliminary study of finds presented above place Liman Tepe as one of the key sites in providing new data that contributes to a better understanding of the characteristics of the Chalcolithic period in West Anatolia. Being a coastal settlement, the site clearly had both overseas and hinterland contacts, contributing to the wide range of shared cultural traits evident from the material culture uncovered at the site. For the Middle Chalcolithic period, a cultural *koine* had already been established throughout Western Anatolia as well as the Eastern Aegean islands, as exemplified by the widespread use

of pattern-burnished pottery and of wattle and daub architecture. Many artefacts, including Melian obsidian, marble vessels, as well as abundant evidence for metals and metallurgy (during the later phases of the Chalcolithic period) from the site, point to an active exchange network that was present in the region during this long period.

Overseas contacts have a long-documented history in the Aegean region. Concerning the colonisation of the Cycladic islands (and here it is meant not only the initial settlement, but continuing population movements), it has been suggested that two separate waves may have been at play in three distinct episodes. One of these waves originated in Mainland Greece, specifically from Attica and Euboea, and another in South-West Anatolia/South-East Aegean, with Ikaria and Astypalaia acting as stepping stones between Samos and the Cycladic islands.⁵⁵ The initial wave of colonisation was believed, until recently, to have been during the Saliagos phase and from the South-Eastern Aegean, with further waves occurring in the Kephala phase (Late Chalcolithic in West Anatolian chronology) and later in the transition from the Final Neolithic to the EBA.

Recent research has produced new evidence for Palaeolithic and Mesolithic presence on the islands,⁵⁶ but this probably means that there have been more waves across the Aegean than previously thought.⁵⁷ That the colonists in new lands often maintain contact with their original homeland has been pointed out and perhaps we should see this continuing interaction throughout the Chalcolithic period as part of this process, coupled with exogamy, linking the different communities and resulting in shared cultural traits. One indeed wonders if marble-working, long thought to have been a specialty of the Cycladic islands, originated in West Anatolia with workshops such as the one at Kulaksızlar or the recently reported site of Kanlıtaş (Eskişehir region) manufacturing marble vessels, figurines and bracelets that supplied a wide area already during the 5th millennium BC.⁵⁸

One may postulate that exchange networks established during the colonisation movements from both mainlands continued to be nurtured and elaborated in the subsequent periods.

Being both easily accessible, as well as being tied by ancestral bonds, the mainlands and the islands continued to feed each other in terms of raw materials as well as finished products. We can only comment on what is traceable in the archaeological record, but more than meets the archaeological eye certainly travelled across the Aegean.

The archaeological evidence points to the acquisition of obsidian as one of the driving factors behind the maritime contacts in the Aegean region during its early prehistory, Melos being the primary supplier of both the mainland and other islands. The preponderance of Melian obsidian in all the Chalcolithic levels of Liman Tepe points to the settlement's extroverted character as a harbour site, an aspect that lasted throughout both the prehistoric and historical periods.

The advent of metals probably resulted in further intensification of contacts where regions rich in metal deposits (including the İzmir region) supplied a new "market" interested in the production of high-status goods. At Liman Tepe, the rise of metallurgy probably reaches back to the 5th millennium BC. Although analysis of metal finds regarding both their provenance and production still need to be carried out, harbour sites such as Liman Tepe may have acted as ports where itinerant traders called for both raw and finished products.

Another point which still needs further investigation is what precipitated the apparent gap in settlement history that is evidenced at many sites, including Liman Tepe, which have been excavated. This chronological gap is also the reason why terminologies that label various sub-periods within the Chalcolithic of Western Anatolia are still varied and the uncertainty where the dividing line between the Middle and the Late Chalcolithic should be placed is persistent. There is a need for

detailed investigation of both climatic as well as other regional environmental data for this period to determine whether an interplay among various environmental factors are causing abandonments in certain locations/regions. The mid-5th to mid-4th millennium gap may or may not be as widespread as believed. We have already pointed out that some sites (e.g. Ege Gübre, see above), including those newly presented in this volume, do fill at least some parts of this long hiatus. Although total regional abandonment is probably not at play, the question still remains why so many settlements in so many different sub-regions of West Anatolia were abandoned.

Other, cultural factors also need to be considered including economic and social changes which may have contributed to a shift in settlement patterns. Changes in animal husbandry and its relationship to emerging complexity have been recently argued for Central Anatolia.⁵⁹ We still possess little quantified archaeobotanical and archaeozoological data from Western Anatolia, especially from new excavations, to understand the variations in settlement economies both regionally as well as diachronically.

The Chalcolithic of Western Anatolia, after years of neglect, is becoming an exciting field where many questions still need answers. It is only recently that the pieces of the jigsaw puzzle are beginning to be put together. Liman Tepe, with evidence for early metallurgy, its extensive maritime contacts and its central as well as coastal location along trade routes possesses a wealth of information concerning this formative period that is just beginning to be tapped for answers.

Notes

¹ The most comprehensive treatment of this problematic period can be found in Schoop 2005, although his conclusions were drawn before the many newly excavated sites, see footnote 10.

² Düring 2011, 200–2.

3 More recent excavations as well as surface surveys carried out are beginning to furnish important data. For surveys carried out by Günel in the Aydın and Muğla regions, see Günel 2003a; Günel 2003b; Günel 2004a; Günel 2004b; Günel 2004c; Günel 2004d; Günel 2005a; Günel 2005b, followed by her excavations at Çine-Tepecik which revealed important Chalcolithic deposits (Günel 2006; Günel 2007; Günel 2008b). Further investigations in the İzmir and Aydın regions include the excavations at Yeşilova (Derin *et al.* 2009), Ulucak (Çilingiroğlu *et al.* 2004), Ege Gübre (Sağlamtimur and Ozan 2012) and Çukuriçi Höyük (Horejs 2012). Although no excavations were carried out at the marble workshop of Kulaksızlar in the Akhisar-Manisa region, the site is so far unique and surface collection has provided a wealth of information on the manufacturing techniques of the marble pointed rhyta, bowls and figurines (Takaoğlu 2002; Takaoğlu 2005). Further north in the Troad, excavations at Gülpınar are revealing a highly developed Middle Chalcolithic culture, complete with architecture (Takaoğlu 2006; Takaoğlu 2007; Takaoğlu and Özdemir 2013). Recent excavations at Uğurlu on Gökçeada are also providing important new data on the Chalcolithic period (Erdoğu 2011). See also relevant papers in this volume.

4 Oikonomos 1921; Oikonomos 1922–4.

5 Akurgal 1950.

6 Erkanal and Erkanal 1983.

7 The Izmir Region Excavations and Research Project (IRERP) is being carried out under the framework of Ankara University Mustafa V. Koç Research Center for Maritime Archaeology and is generously supported by the Ministry of Culture and Tourism – Turkey, DÖSSİM, Ankara University Scientific Research Fund, TÜBİTAK Project nos 108K263 and 114K266, INSTAP; Ankara University, Faculty of Languages and History – Geography (DTCF), INSTAP-SCEC (D. Faulmann, Ch. Papanikolopoulos and M. Roggenbucke), the Urla Municipality, the Turkish Historical Society (TTK), and Turkish Institute of Nautical Archaeology (TINA) and Koç Foundation. The authors would like to express their gratitude to Prof. Dr H. Erkanal for his generosity in permitting unrestricted use of the IRERP material. <http://ankusam.ankara.edu.tr>. Authors' affiliation: Dr. Rıza Tuncel, Eastern Mediterranean University

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8 Erkanal and Şahoğlu 2012b, map 1; Ersoy *et al.* 2013, 193–5, figs 3–6.

9 Erkanal 1999a, 326.

10 Erkanal and Şahoğlu 2012b, 221.

11 Erkanal 1998, 391.

12 Erkanal and Günel, 1996, 314.

13 Preliminary reports for Bakla Tepe have appeared in Erkanal 2002; 2008; Erkanal and Özkan 1997; 1998; 1999a; 1999b; 2000. Erkanal and Şahoğlu 2012a provides a summary of the excavations. For the architecture and settlement plan of Bakla Tepe also see Şahoğlu and Tuncel 2014.

14 Although one should be wary of using the term Middle Chalcolithic since there exists, for the time being, a considerable hiatus between this and the ensuing Late Chalcolithic period, and there is no consensus as to when to place a dividing line between the two, it is adopted here it as no other solution is currently possible.

15 The carbonised grains are currently under study by Dr A. Livarda (Nottingham University).

16 For the most recent evaluation of EBA I long houses of Liman Tepe see Erkanal and Şahoğlu 2012b, 222–5.

17 Takaoğlu and Özdemir 2013.

18 Şahoğlu and Tuncel 2014.

19 Korfmann *et al.* 1995; Sperling 1976.

20 Lloyd and Mellaart 1962, 17–26, figs 4–6.

21 Handles with applied pellets are also known from Gülpınar, see Takaoğlu 2006, [fig. 6.1–3](#).

22 *cf.* Gülpınar (Takaoğlu 2006, [fig. 6.14](#); Takaoğlu and Özdemir 2013, res. 4–6); Çine-Tepecik (Günel 2008b, 78, 89, res. 6); Uğurlu (Erdoğu 2011, 49, [fig. 6.1–3](#)); Samos-Tigani (Felsch 1988, Taf. 15.4–5, Taf. 18.1, 111, Taf. 64.272, 274, 275, 289, Taf. 65. 298); Emporio-Chios (Hood 1981, fig. 127.184, fig. 128. 212, 225, pl. 31.156); Beşik-Sivritepe (Seeher 1985, 18, abb. 18. LL 83–4/5, LL 83–46/8); Karain Cave (Seeher 1988, 224, res. 4/1, 5/5, 5/6, 6/14). Some examples from Samos-Tigani and Karain Cave include the related form where a single pellet is applied on top of the handle.

- 23 cf. Gülpınar (Takaoğlu 2006, fig 10.26, 27; Takaoğlu 2007, [figs 3.3, 5, 8](#); fig. 4. 8); Çine-Tepecik (Günel 2008b, 78, 90, res. 7); Uğurlu (Erdoğu 2011, 48–9, fig. 6.5, 6, 10); Beşik-Sivritepe (Seeher 1985, abb. 16); Samos-Tigani (Felsch 1988, pl. 19.5, pl. 26.4; pl. 27.1, 2, pl. 32.3, 5, pl. 57. 143, pl. 59. 206, 228, pl. 6.231, 233, 234, pl. 62.255; pl. 64.291, 295); Keos-Kephala (Coleman 1977, 11–2, pl. 4–43, 86–8).
- 24 cf. Gülpınar (Takaoğlu 2006, fig. 6.9–11, fig. 8.10–12).
- 25 Şahoğlu and Tuncel 2014.
- 26 See Lloyd and Mellaart 1962, 83, 91, 95, 103 for counts of white-painted sherds in various Late Chalcolithic levels.
- 27 Joukowsky-Sharp 1986, 313.
- 28 French 1961; French 1967; French 1969.
- 29 Meriç 1987.
- 30 For Demircihüyük the Late Chalcolithic wares (Wares F–G) are summarised in Seeher 1987c, 38–42, 52–64. For the white painted wares at Demircihüyük see Taf. 28. 13–25, Taf. 29.1–26. The Late Chalcolithic pottery from Orman Fidanlığı (Levels VI–VII) is scant. There is nevertheless evidence for the use of white-painted wares at this site as well, see Efe 2001, 49, 54–5, 60–1 for a summary of the Late Chalcolithic pottery. For white-painted wares, see Efe 2001, fig 17.269–71, 277–8, fig. 19.286, 290, 293, 297–9; fig 20.304, 306–7.
- 31 The Late Chalcolithic chronology of İkiztepe has been a subject of much debate, see Schoop 2005, 305–22 for a discussion of the coastal Black Sea Chalcolithic, largely based on İkiztepe.
- 32 e.g. Hood 1981, 317–8, fig. 145 (568).
- 33 Şahoğlu and Tuncel 2014.
- 34 Blackman 1986. The analysis of the obsidian artifacts from Aphrodisias includes only one piece from EBA deposits, which is sourced to be Anatolian in origin. The extremely small sample size for this period inhibits any reliable assessment of changes in exchange patterns between the Late Chalcolithic and the Early Bronze Age.
- 35 Renfrew *et al.* 1968; Renfrew 1973b, 180; Torrence 1986, 14.
- 36 Takaoğlu 2002; Takaoğlu 2005.
- 37 Baysal *et al.* 2015.
- 38 Coleman 1977, 64–5, 106, pl. 23.103, 109, pl. 67.103.
- 39 Coleman 1977, 5.

- 40 Renfrew 1972, pl. 1, 2.
- 41 Sperling 1976, 354, pl. 7.830; *cf.* Coleman 1977, 106.
- 42 Sperling 1976, 322; Takaoğlu and Bamyacı this volume.
- 43 Efe 1988, 79, pl. 38, 7; Seeher 1987c, figs 1–2.
- 44 Felsch 1988, 132–3.
- 45 Felsch 1988, 132, 221, no. V 23, pl. 75.
- 46 Felsch 1988, 132, 221, no. V 20, pl. 48, 8, pl. 75.
- 47 Felsch 1988, 132–3, 221, no. V 24–6, pl. 48, 5, 6, 7, pl. 75.
- 48 Renfrew 1972, 166.
- 49 Lengeranlı 2008.
- 50 Şahoğlu and Tuncel 2014.
- 51 In calibrating the radiocarbon dates, the program OxCal v. 4.2.3 (Bronk Ramsey 2009) has been used with the IntCal13 atmospheric curve (Reimer *et al.* 2013).
- 52 Özdoğan 1993.
- 53 For the excavations see Korfmann 1986; Korfmann 1989a; Korfmann *et al.* 1995. For chronology see Korfmann and Krömer 1993; Krömer *et al.* 2003
- 54 Sağlamtimur and Ozan 2012, 240.
- 55 Broodbank 2000, 133–41, figs 38–9.
- 56 See *e.g.* Strasser *et al.* 2010 for recent finds on Crete. For the Cyclades, finds from Stelida, Naxos have also been reported, see <http://stelida.mcmaster.ca/geoarchaeology-1/paleolithic>, for the Mesolithic from Stelida see <http://stelida.mcmaster.ca/geoarchaeology-1/mesolithic> (accessed 10.06.2014).
- 57 Recent genetic research strongly suggests that mainly maritime routes were used by Neolithic farmers for the colonisation of Europe, which supports a very active seafaring culture and spread of actual human populations from the earliest times, see Paschou *et al.* 2014; Fernández *et al.* 2014.
- 58 Baysal *et al.* forthcoming.
- 59 Arbuckle 2012.

Interaction as a stimulus? Çukuriçi Höyük and the transition from the Late Chalcolithic to the Early Bronze Age in Western Anatolia

Barbara Horejs and Christoph Schwall

Introduction

Regarding Western Anatolia itself, many studies concerning the Chalcolithic period have been carried out over the past few decades. The discovery and excavation of several new sites have provided finds which have allowed us to assume that the region was already part of a regional and supra-regional communication and exchange system before the beginning of the EBA. The question arises as to whether interaction can be seen as a stimulus for socio-cultural processes in general. Therefore, it would be helpful to take a closer look at the theoretical aspects of exchange and communication. Focusing on this topic, it is necessary to consider several layers of communication in order to understand the significance of communication in prehistoric times.¹ Based on material analyses, St. Schwenzer adjusted E. Gringmuth-Dallmer's construct of five partially overlapping thematic levels of *communication*: the social, the religious, the technical, the political and the economic level.² To this Schwenzer also added a social and a spatial level. Following the model of J. Rüsçh and G. Bateson the *social* aspect can be subdivided into four distinct

levels. Intra- and interpersonal communication form the basis of this model and are super-ordinated by the more advanced group and cultural communications.³ Moreover, the *spatial* structure of communication is a crucial factor in distinguishing between local, regional, interregional and supra-regional communication and thus potential exchange systems.⁴ With regard to Western Anatolia, the case study of Çukuriçi Höyük allows us to show that different types of communication existed during the Chalcolithic period. The results of the excavations carried out at this tell settlement on the Central Aegean coast of Western Anatolia reveal contacts within Anatolia and abroad.

Çukuriçi Höyük: Late Chalcolithic remains

The excavations carried out at Çukuriçi Höyük uncovered three distinct occupation levels in the northern and central areas of the tell settlement pointing to Late Chalcolithic activities at the site (Fig. 54.1). Radiocarbon dating allowed us to date these levels to the second half of the 4th millennium BC. The oldest level (ÇuHö VII) represented a phase during which the settlement had been surrounded by a ditch. The upper levels (ÇuHö VI–Vb) contained a sequence of layers that represented the infilling of the ditch⁵ and above the subsequent construction of the settlements ÇuHö VIb to Vb. The investigations in general yielded several architectural remains (rectangular and stone row structures), a cist grave, and also finds which point to various advanced craft activities in the Late Chalcolithic period. Besides animal husbandry and agriculture, metallurgy and textile production as well as evidence of food storage indicate that society was becoming more differentiated. Moreover, the presence of a Kilia type figurine found recently at the site and a large quantity of imported obsidian from the Aegean island of Melos attest to constant contact with communities in Western Anatolia and in the Aegean, possibly extending as far as the Cyclades. Contact with the island of Melos has already been confirmed by obsidian finds recovered

from Neolithic and EBA layers at Çukuriçi Höyük.⁶

Evidence of communication and exchange in 5th millennium BC Western Anatolia

Signs of specialised craft activities, raw materials, and finished products as well as the distribution of mat-impressed pottery could be seen as evidence attesting to communication and exchange systems having existed in Western Anatolia and the surrounding areas. The intensification of communication networks seems to have started as early as the Middle Chalcolithic Period (5500–4250 BC)⁷ in Western Anatolia and the East Aegean islands and presumably also stimulated the later formation of settlements of supra-regional importance. One important indication for these contacts can be recognised in architectural patterns. Comparable architecture can be observed in the 5th and 4th millennium BC where rectangular, apsidal/elliptic and circular buildings as well as stone row structures were used, the latter especially in the coastal regions and on the East Aegean islands.⁸

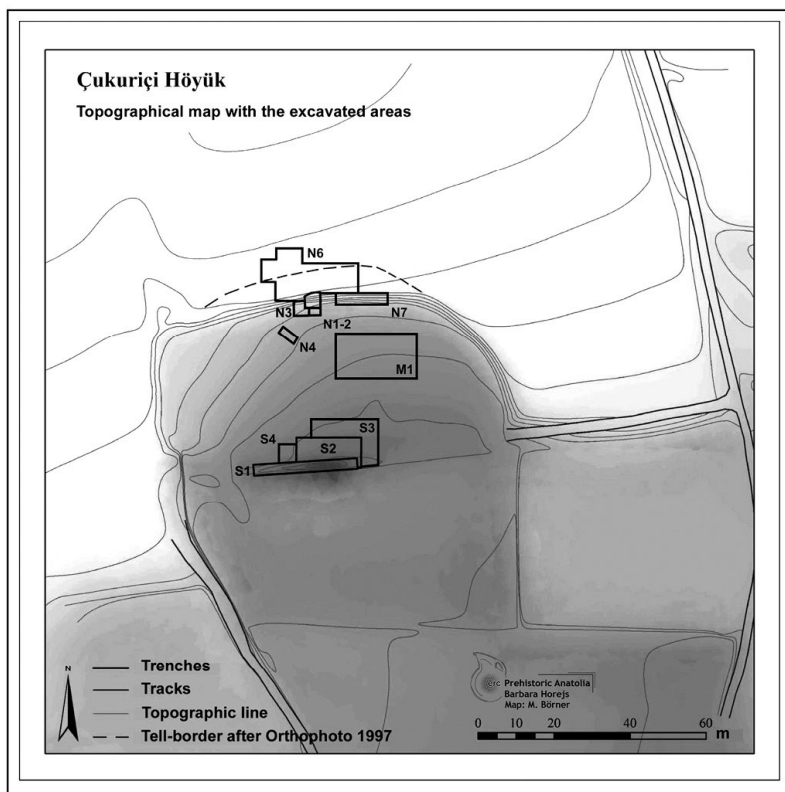


Figure 54.1. Topographical map of the tell site Çukuriçi Höyük with trenches excavated since 2006 and reconstructed settlement size (ERC Prehistoric Anatolia: M. Börner)

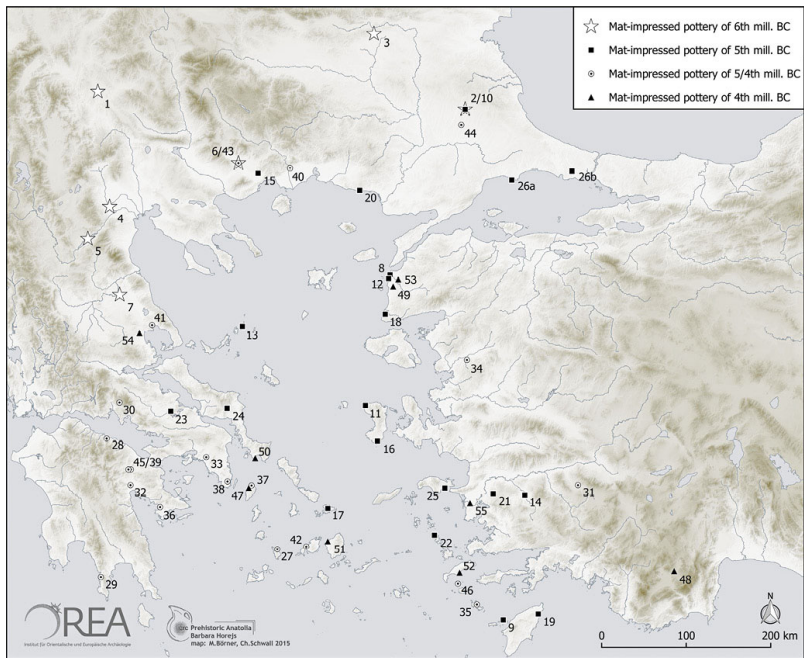


Figure 54.2. Findspots of mat-impressed pottery dating to the 6th, 5th and 4th millennium BC in Mainland Greece, Turkish Thrace, the Aegean Islands and Western Anatolia (after Labriola 2008 with additions; references cf. catalogue; ERC Prehistoric Anatolia: M. Börner, Ch. Schwall).

Specialised crafts and exotic raw materials

Specialised crafts and the exchange of exotic raw materials could indicate communication spheres in the 5th and 4th millennia BC. Early evidence of specialised craft activities is known from Western Anatolia in the Middle Chalcolithic period. Metalworking can be dated back to the second half of the 5th millennium BC based on objects found at Orman Fidanlığı VII and Aphrodisias-Pekmez VIIIA (LC 1) in Western Anatolia.⁹ Two objects from Emporio IX–VIII on Chios probably date from an earlier period.¹⁰ In addition to metalworking, textile production, attested to by a loom weight found at Kumtepe IA2, is a further indication of early specialised crafts in the Middle Chalcolithic period.¹¹ These crafts

were inextricably linked with raw material exchange. A trade network of Melian obsidian, attested at Çukuriçi Höyük during the 7th to 3rd millennia BC,¹² represents continued access to the raw material sources on the Cycladic islands. Examples dating from the Middle Chalcolithic period were found at Beşik-Sivritepe,¹³ Gülpınar¹⁴ and Liman Tepe VII.4.¹⁵ Obsidian finds, presumably of Melian provenance, are known for example from Alimnia¹⁶, Emporio VIII on Chios,¹⁷ Kalythies II–III on Rhodes,¹⁸ Kumtepe IA1,¹⁹ Partheni on Leros,²⁰ and Tigani II–IV on Samos.²¹ The question arises as to whether other finds besides obsidian might represent early interaction between Western Anatolia and the border regions. The surface finds recovered from a marble workshop at Kulaksızlar in the province of Manisa perhaps provide clues as to the distribution of pointed beakers and Kilia type figurines.²² The pointed beakers in particular were distributed throughout Western Anatolia and the East Aegean islands.²³ Moreover, three beakers of the same type were found on the Aegean islands of Lemnos (Koukonisi), Keos (Kephala), and on Naxos, and another was recovered from Grave 41 at Varna in Bulgaria.²⁴ T. Takaoğlu has mentioned that the marble pointed beakers found in Western Anatolia might predate finds from the Aegean islands.²⁵ Kilia type figurines, miniature sculptures popular in the Middle and Late Chalcolithic periods, show a similar distribution, albeit restricted to the Western Anatolian region.²⁶

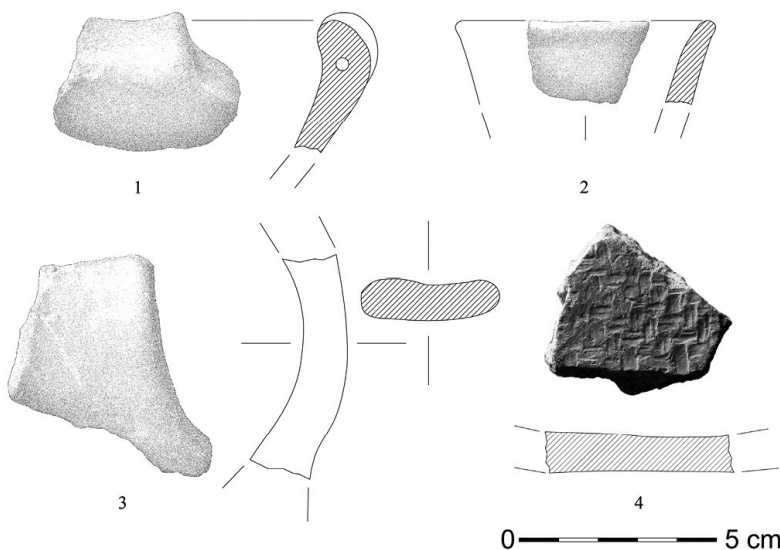


Figure 54.3. Diagnostic pottery finds from Bağlı Tepe in the Gümüş valley including mat-impressed ware (ERC Prehistoric Anatolia: L. Schneider, B. Horejs, Urban and Partner). 1. Find no. GÜM04/12/F3/1/5. Type: Carinated bowl with short kink, regularly rounded lip, horizontal lug at the rim (broken); fabric: 569, fine to medium fine ware: medium burnished, slightly uneven, light brown to dark brown, core grey to black. DmR indeterminate; wall thickness 0.7 cm. 2. Find no. GÜM04/12/F3/1/2. Type: High closed vessel, cylindrical neck, regularly rounded lip; fabric: 562, fine ware: fine burnished and orange to light brown slip, even, slightly shiny, core brown to grey. DmR 6.0 cm (7.0 %); wall thickness 0.6 cm. 3. Find no. GÜM04/12/F3/1/3. Type: Vertical strap handle; fabric: 574, fine ware: fine burnished, shiny, brown, core grey to dark grey. Handle length 6.6 cm; handle width 4.7 cm; handle thickness 1.6 cm. 4. Find no. GÜM04/12/F3/1/9. Type: Base, mat-impressed on the bottom; fabric: 533, fine to medium fine ware: surface coarse burnished, rough, light brown, core grey; Impressed ware. DmR 11.0 cm (6.0 %); wall thickness 0.8 cm.

Mat-impressed pottery as a marker of interaction

Broader pottery studies have revealed wide-ranging communication networks. For example, mat-impressed pottery represents a sphere of interaction in the Middle Chalcolithic period. This specific type of pottery with its distinct mat-impressions on the base of the vessel was widespread throughout the Greek Mainland and the Cyclades in the 5th and 4th millennia BC. Mat-impressions found at early sites in Northern Greece as well as in Turkish Thrace could reflect a possibly older Balkan (cf. Anza, Karanovo) tradition (Fig. 54.2; Catalogue of finds).²⁷ Beyond the distribution area on the Greek Mainland in Chalcolithic times, we may add other examples from Turkish Thrace, the East Aegean islands and the coastal sites of Western Anatolia from the Troad in the north to Lycia in the south. Similar mat-impressions are known from excavated sites such as Beşik-Sivritepe, Gülpınar, Hanay Tepe and surface finds from Alacalıgöl and Bozköy-Hanaytepe in the Troad. Surveys at the site of Bağlı Tepe in the Gümüş Valley also revealed similar finds (Fig. 54.3).²⁸ The survey at Halasarna on Kos, excavations at Emporio and Ayio Gala on Chios, Partheni on Leros, Kalythies on Rhodes, Charkadiko on Tilos, Yali, and Alimnia also yielded similar finds. In Western Anatolia, they are also known from such sites as Milet, Malkayası Cave, Çine-Tepecik Höyüğü, Aphrodisias-Pekmez and Bağbaşı. Several pieces are also known from excavations at Aşağı Pınar, Tilkiburnu, Toptepe or Yarımburgaz (?) and surveys conducted in Turkish Thrace.²⁹ (For references, see Catalogue below.)

Especially worth mentioning are the surface finds from Bağlı Tepe, where two fragments of mat-impressed pottery were found. One was found during the work conducted by J. Driehaus in 1955; the other during a recent survey carried out in 2012 (Fig. 54.3).³⁰ Both mat-impressed sherds were found associated with pottery types from the 5th and 4th millennia BC.

Conclusions

As shown by the examples cited, different kinds of communication

were already visible in the 5th and 4th millennia BC in Western Anatolia. Obsidian finds of Melian provenance illustrate early access to supra-regional raw material sources on the Cyclades.³¹ Moreover, the distribution of finds such as marble pointed beakers and ceramic vessels with mat-impressed bases indicate that Western Anatolia was part of a supra-regional interaction sphere as early as the 5th millennium BC. Especially the distribution of mat-impressed pottery finds near the sea and on islands suggests trans-Aegean contacts with a strong maritime affinity. However, Kilia figurines seem to have been restricted to the Western Anatolian region and probably represent a distinct regional style and ritual behaviour. Besides the Kilia type figurines, which were also widespread in the 4th millennium BC, an increasing number of metallurgical finds³² as well as evidence for textile production in the form of loom weights³³ show a general interest in and intensified use of new technologies as a result of a dynamic process.

Therefore, the basis upon which the EBA proto-urban societies were formed can already be identified in the Middle and Late Chalcolithic period in Western Anatolia. Particularly the closed character of settlements attested in both periods, as well as specialised craft activities and food storage suggest some kind of social organisation.³⁴ To date, two distinct settlement enclosures dating from the 4th millennium BC, Çukuriçi Höyük and Barcın Höyük, have been excavated in Western Anatolia.³⁵ It is questionable whether these enclosures could be seen as possible predecessors of fortifications that appeared at the beginning of the 3rd millennium BC in EBA 1 settlements in Western Anatolia and on off-shore islands, including Bakla Tepe EBA 1, Beycesultan XIX, Demircihüyük F, Emporio III, Hanay Tepe upper stratum B(?), pre-Heraion I, Karataş I, Liman Tepe VI, Myrina IV, and Poliochni azzuro on Lemnos, Thermi II on Lesbos, Troy I, and Yenibademli Höyük on Imbros.³⁶

As regards Çukuriçi Höyük, it is interesting that the settlement

enclosure, the ditch, was filled in during the Late Chalcolithic period to make way for an expansion of the settlement. Due to the destruction of the tell site after 1995, especially the uppermost and external areas of the site, it was not possible to reconstruct a settlement enclosure system with regard to the EBA 1 contexts. In any case, a reduction of the settlement size was not identified; it seems, rather, to have stayed the same size until its abandonment around 2750 BC. The complete opposite took place at Bakla Tepe to the north-west of Çukuriçi Höyük, where the settlement was considerably reduced during the transition from the fourth to the 3rd millennium BC.³⁷ The fact that one settlement expanded while its contemporary neighbour was considerably reduced seems remarkable. A possible explanation for this phenomenon could be the prosperity of Çukuriçi Höyük with its wide-ranging exchange network during the EBA 1. Melian obsidian in particular reached the settlement in great quantities during this time, so we may assume that the settlement acted as gateway and possessed some kind of distribution function for Melian obsidian.³⁸ Besides the obsidian trade, Çukuriçi Höyük was also an important centre of metal production in the EBA 1, based on various metal workshops studied and metallurgical analyses carried out.³⁹ Lastly, the existence of a Near Eastern metrological system emphasizes the integration of Çukuriçi Höyük in an exchange system that extended beyond the borders of Western Anatolia.⁴⁰

Catalogue of mat-impressed pottery findspots

6th millennium BC

1. Anza (Mock 1976, 110–1, fig. 64; Labriola 2008, 309)

Date: Anza Ia–III (6100–5500 BC, Gimbutas 1976, 30, tab. I).

2. Aşağı Pınar (Parzinger 2005, 41, 222, pl. 116; Özdoğan 2013, 187, 254, fig. 126.255, fig. 127)

Date: 5950–5500 cal BC (AP 6–7, cf. Özdoğan 2013, 190).

3. Karanovo (Seebacher 1997)

Date: Karanovo I–II (first half of the 6th millennium BC, cf. Krauss

2008, 138–9).

4. Nea Nikomedeia (Pyke and Yiouni 1996, 61; Perlès 2001, 243, 245, Abb. 11.5; Labriola 2008, 309)

Date: EN III (Reingruber 2008, 394–6).

5. Servia (Carrington-Smith 2000, 240–7; Ridley and Wadle 1979, 193; Labriola 2008, 309)

Date: MN/LN (Reingruber 2008, 401–2).

6. Sitagroï (Adovasio and Illingworth 2003; Elster 2003, 258, Taf. 6.17)

Date: 5500–5200 BC (Adovasio and Illingworth 2003, 256).

7. Soufli-Magoula (Perlès 2001, 243–5, Abb. 11.5)

Date: late EN/MN (Reingruber 2008, 293–6).

5th millennium BC

8. Alacalıgöl – Survey (Özdemir 2007, 73 with reference to Aslan 1997, fig. 30)

Date: 5th millennium BC (Gabriel *et al.* 2004).

9. Alimnia (Sampson 1987, 81–2, 185, fig. 45α–γ; Alram-Stern 1996, 488; Labriola 2008, 316)

Date: LN (Sampson (ed.) 2006, 147, 232; Georgiadis 2012, 12).

10. Aşağı Pınar (Parzinger 2005, 77, cat. no. 2, 107 pl. 1, 2)

Date: Level Aşağı Pınar 2 – MC (Özdoğan 2013, 190; Parzinger 2005, 63 fig. 17)

11. Ayio Gala Lower Cave/Chios (Furness 1956, 197, pl. 21.7; Labriola 2008, 316)

Date: EC or later (See the discussion in Schoop 2005, 229–30, 258–9, 271).

12. Beşik-Sivritepe (Schliemann 1881, 742; Lamb 1932, 128; Hood 1981, 21; Seeher 1985, 174; Schoop 2005, 243; Gabriel 2006, 358, fig. 2)

Date: MC (Schoop 2005, 271).

13. Cave of the Cyclops/Youra (Sampson 2008a, 57).

Date: LN (Sampson 2008a, 32).

14. Çine-Tepecik Höyüğü (Günel 2007, 235; Günel 2014, 87)

Date: MC (Günel 2007, 235; Günel 2014, 89).

- 15. Dikili Tash** (Demoule 2004, 83, pls 21.4–5; 22.1–4)
Date: Néolithique Récent II (Darque and Tsirtsoni 2010, 63).
- 16. Emporio/Chios** (Hood 1981, 21, 217, 248, 289)
Date: MC (Schoop 2005, 271).
- 17. Ftelia/Mykonos** (Sampson (ed.) 2002, 89)
Date: LN (Facorellis and Maniatis 2002, 311).
- 18. Gülpınar** (Özdemir 2007; Özdemir 2012; Takaoğlu 2006, 308, fig. 13.37; Takaoğlu and Özdemir 2013, 23, fig. 8)
Date: MC (Takaoğlu 2006, 289).
- 19. Kalythies/Rhodes** (Sampson 1987, 30)
Date: LN (Sampson 1987, 30).
- 20. Makri** (Eustratiou *et al.* 1998, 32)
Date: middle of 6th until beginning of 5th millennium BC (Eustratiou *et al.* 1998, 58).
- 21. Malkayası Cave** (Peschlow-Bindokat 2006, 86, fig. 81b; Peschlow-Bindokat and Gerber 2012, 75)
Date: MC (Peschlow-Bindokat and Gerber 2004, 205).
- 22. Partheni/Leros** (Sampson 1987, 90, 185, fig. 48.α; Alram-Stern (ed.) 1996, 493; Sampson (ed.) 2006, 231; Labriola 2008, 316)
Date: LN (Sampson (ed.) 2006, 147, 230; Georgiadis 2012, 12).
- 23. Sarakenos Cave** (Sampson 2008b, 188–9)
Date: LN IB (Sampson 2008b, 50, tab. 3).
- 24. Skoteini Cave/Euboea** (Mari 1993, 198, figs 194–5; Beloyanni 1993; Labriola 2008, 316, V. Mastrogriannopoulou pers. comm.)
Date: LN (Beloyanni 1993, 354–7; Sampson (ed.) 2006, 147, 149–57).
- 25. Tigani/Samos** (Heidenreich 1935/36, 139, pl. 35.2–3; Furness 1956, 181; Labriola 2008, 316)
Date: MC (Schoop 2005, 271–2).
- 26. Toptepe (a) or Yarımburgaz (b)** (Özdoğan *et al.* 1991, 121, fig. 23i)
Date: time span of both sites (first half of 6th until first half of 5th

millennium BC (referring to Schoop 2005, 266, 271, fig. 6.10, 302).

5th/4th millennium BC

27. Ayios Sostis/Siphnos (Gropengiesser 1987, 29, fig. 1, pl. 4; Alram-Stern 1996, 459–60)

Date: LN/FN (Gropengiesser 1987, 5; Alram-Stern (ed.) 1996, 460).

28. Aigeira (Alram-Stern 2001, 65, fig. 2.e, 66; Labriola 2006; Labriola 2008, 316)

Date: FN (Alram-Stern 2001, 64); mixed deposits, Neolithic to MH (Labriola 2006, 150).

29. Alepotrypa Cave (Papathanassopoulos 1996, 223, fig. 29; Labriola 2008, 316)

Date: FN (Papathanassopoulos 1996, 223).

30. Antre Corycien (Touchais 1981a, 109, 114, fig. 11.69; Touchais 1981b, 201, pl. 1.69; Labriola 2008, 316)

Date: FN (Touchais 1981b, 201).

31. Aphrodisias-Pekmez (Joukowsky 1986, 330; Schoop 2005, 159)

Date: LC (Schoop 2005, 188–9).

32. Aspis (Touchais 1980, 20–1, fig. 8.56–7, 23, fig. 11.56–7, 38–9; Labriola 2008, 316)

Date: FN (Touchais 1980, 1).

33. Athens, Agora (Immerwahr 1971, 5, 23, pl. 1.6; Labriola 2008, 316)

Date: Latest Neolithic or EH I (Immerwahr 1971, 23).

34. Bağlı Tepe – Survey (Driehaus 1957, 80, fig. 2, 3; Horejs 2014c, 113, [fig. 5.3](#); Pirson & Horejs 2014, 304, 311, [fig. 11.3](#))

Date: MC/LC (Horejs 2014c, 113).

35. Charkadio Cave/Telos (Bachmayer *et al.* 1976, 140)

Date: LN/FN (Sampson 1987, 115; Alram-Stern (ed.) 1996, 488; Alram-Stern 2004, 950).

36. Franchthi Cave (Jacobsen 1973, 271–2, fig. 8.15, pl. 51.c; Vitelli 1999, 292–3, fig. 73.e, 327; pl. 7b; Labriola 2008, 316)

Date: LN (Jacobsen 1973, 266); FN (Vitelli 1999, 2–3).

37. Kephala/Keos (Carrington-Smith 1977, 120–1, pl. 90.A–H, J, L–P; 91.A–D; Alram-Stern (ed.) 1996, 455; Labriola 2008, 316)

Date: FN (Coleman 1977, 110).

38. Kitsos Cave (Lambert 1981, 285, 323, pl. 24; Labriola 2008, 316)

Date: LN/FN (Lambert 1981, 275).

39. Nemea (Caskey and Blegen 1975, 270–1, pl. 68.17)

Date: LN–EH I (Caskey and Blegen 1975, 271).

40. Paradeisos (Johnson 1987, 50, tab. 4.75, fig. 40.229, fig. 41.249)

Date: LN/FN (Johnson 1987, 39).

41. Petromagula (Alram-Stern (ed.) 1996, 764)

Date: FN (Alram-Stern (ed.) 1996, 764).

42. Saliagos (Evans and Renfrew 1968, 71, pl. 55.6–11; Labriola 2008, 316)

Date: FN (Evans and Renfrew 1968, 90).

43. Sitagroi (Adovasio and Illingworth 2003; Elster 2003, 259–61, 266, pl. 6.15–16)

Date: LN/FN, Sitagroi III–IV (Adovasio and Illingworth 2003, 256).

44. Tilkeburnu (Özdoğan 1982, 10)

Date: Karanovo VI (Özdoğan 1982, 11); dated to first half of 4th millennium BC (Schoop 2005, 270).

45. Tsoungiza (Pullen 2011, 612, fig. 8.7, 12)

Date: FN (Pullen 2011, 611).

46. Yali (Sampson 1988a, 101, figs 83–5, 115, 120, 155–6, fig. 68.β, 261; Alram-Stern (ed.) 1996, 492; Labriola 2008, 316)

Date: LN/FN (Sampson (ed.) 2006, 235, 249–50; Georgiadis 2012, 12).

4th millennium BC

47. Ayia Irini/Keos (Caskey 1972a, 360, pl. 76.A31; Wilson 1999, 13, pl. 41.I–84–7; Labriola 2008, 316)

Date: Ayia Irini I (FN), second half of 4th millennium BC (Wilson 1999, 227).

48. Upper Bağbaşı (Eslick 1992, 17)

Date: LC (Eslick 1992, 101; Schoop 2005, 191).

49. Bozköy-Hanaytepe (Blum *et al.* 2011, 132, pl. 6.8)

Date: LC (Blum *et al.* 2011, 138).

50. Gremenitsa/Euboea – Survey (Cullen *et al.* 2013, 63, pl. 39B)

Date: FN or EH I (Cullen *et al.* 2013, 63).

51. Grotta/Naxos (Kontoleon 1949, 119–20, fig. 13)

Date: 4th until 3rd millennium BC (Kontoleon 1949, 120).

52. Halasarna/Kos – Survey (Georgiadis 2012, 29–30, 136)

Date: FN or EBA (Georgiadis 2012, 30, 136).

53. Hanay Tepe (Lamb 1932, 118 [fig. 5.3](#); Schachner 1999, 19 [fig. 11.3](#))

Date: LC or EBA (Schachner 1999, 22).

54. Mikrothives (Ch. von Hauff pers. comm.)

Date: 3670–3380 BC (Adrymi-Sismani 2007, 74).

55. Milet (Voigtländer 1981, 121; Voigtländer 1982, 34, 37, figs 2.14–15, 115, pls 15.8, 16.1–3)

Date: LC or EBA (Parzinger 1989, 429).

Notes

1 Schwenzer 2009, 12–18.

2 *cf.* Gringmuth-Dallmer 2000, 32–8.

3 *cf.* Rüscher and Bateson 1987, 275.

4 Schwenzer 2009, 15–17.

5 Horejs 2014a, 19.

6 Bergner *et al.* 2009.

7 Following the chronology of U. Schoop (Schoop 2005, 17; Schoop 2011).

8 *cf.* Horejs and Schwall 2015.

9 Orman Fidanlığı (Ay-Efe 2001, 139; Efe 2002, 50–1); Aphrodisias-Pekmez (Joukowsky Sharp 1986, 287–9). *cf.* Mehofer 2014.

10 Hood 1982, 657; *cf.* Mehofer 2014.

11 Sperling 1976, 326, pl. 71.236.

12 Bergner *et al.* 2009; Galik and Horejs 2011, 88–9; Knitter *et al.* 2012, 362; Knitter *et al.* 2013, 4.

13 Korfmann 1986, 310.

- 14 Takaoğlu and Özdemir 2013, 27.
- 15 Kouka 2009b, 143.
- 16 Kaczanowska *et al.* 2006; Sampson 1987, 84–5, 184; Sampson (ed.) 2006, 232.
- 17 Hood 1981, 103.
- 18 Kaczanowska *et al.* 2006, 463; Sampson 1987, 46–8; Sampson (ed.) 2006, 248.
- 19 Sperling 1976, 323.
- 20 Sampson 1987, 91; Sampson (ed.) 2006, 231
- 21 Felsch 1988, 223–36.
- 22 Dinç 1996a; 1996b; Takaoğlu 2001; 2002; 2005; 2011.
- 23 Kouka 2009b, 143; Takaoğlu 2002, 78–9; 2005, 37–8; 2011, 161–2; Takaoğlu and Bamyacı this volume.
- 24 Boulotis 1997, 257, fig. 23; Getz-Gentle 1996, 52–3; Ivanov 1978b, 16; Lichter 2011, 37–9; Takaoğlu 2002, 78–9; 2005, 37–8; Takaoğlu 2011, 161–2.
- 25 Takaoğlu 2002, 79. Sotirakopoulou 2008a, 537 disagrees with this hypothesis.
- 26 Joukowsky 1982, 88, fig. 1; Seeher 1992; Schoop 2005, 269; Takaoğlu 2002, 79; 2005, 38; 2011, 161–2.
- 27 Labriola 2006, 147; 2008, 319, fig. 2.
- 28 *cf.* Former name of Bağlı Tepe was “Tepe I im Gümüşova-deresi” (Driehaus 1957, 77; Horejs 2013, 113).
- 29 According to B. Erdoğan a few surface finds of the Neolithic and Chalcolithic period (referring to the chronological sequence of the Balkans) are known from Altağaç; Kocatepe; Tepeyanı; Yağcılı and Yumurta Tepe (Erdoğan 2001, 114). Regarding Toptepe or Yarımburgaz, the provenance of the find is not apparent from the publication (*cf.* Özdoğan *et al.* 1991, 121, fig. 23i).
- 30 Driehaus 1957, 80, fig. 2.3; Horejs 2014c, 113, [fig. 5.3](#). The prehistoric surveys are part of the German excavations at Pergamon (F. Pirson) since 2008 (Horejs 2009a; 2009b; 2010a; 2010b; 2011a; 2011b; 2012; 2013; 2014b; Pirson and Horejs 2014).
- 31 Obsidian finds were also recovered from Ulucak Höyük level III, but no provenance identified (Çilingiroğlu *et al.* 2004, 20).
- 32 Mehofer 2014, 468–71; Yalçın 2000, 23.
- 33 Aphrodisias-Pekmez (Joukowsky Sharp 1986, 379–81); Bağbaşı (Eslick 1992, 35–6); Beycesultan (Lloyd and Mellaart 1962, 268, fig.

F.2,22, 275); Bakla Tepe (Erkanal and Özkan 1999b, 136, 198, fig. 39); Çukuriçi Höyük (Horejs and Schwall 2015, 460); Kuruçay Höyük (Umurtak 1996, 53, pls 147.5, 150.2).

34 *cf.* Horejs and Schwall 2015.

35 Gerritsen *et al.* 2010, 199; Horejs and Schwall 2015, 461.

36 Bakla Tepe EBA 1 (Erkanal 1999b, 239; Erkanal and Özkan 1999b, 121–4; Erkanal 2008, 167); *cf.* Ivanova 2008b, 275. Beycesultan XIX (Lloyd & Mellaart 1962, 27); *cf.* Ivanova 2008b, 275–6. Demircihöyük F1 (Korfmann 1983, 46–7, 189); *cf.* Ivanova 2008b, 277. Emporio III (Hood 1981, 131–2; Kouka 2002, 268); *cf.* Alam-Stern 2004, 941; Ivanova 2008b, 280–1. Hanaytepe upper stratum B (?) (Calvert 1859, 3; Calvert 1881, 790; Schachner 1999, 11); pre-Heraion I (Kyrieleis and Weisshaar 1985, 409–18; Kouka 2002, 286); *cf.* Alam-Stern 2004, 945; Ivanova 2008b, 284. Karataş I (Mellink 1973, 293–5; Mellink 1974, 352); *cf.* Ivanova 2008b, 289. Liman Tepe VI (Erkanal 1999b; 238–9; Erkanal 2008, 180; Kouka 2009b, 144); *cf.* Ivanova 2008b, 295–6. Myrina IV (Acheilara 2008, 3); *cf.* Alam-Stern 2004, 930; Ivanova 2008b, 300. Poliochni azzurro (Bernabò-Brea 1964, 117–24; Traverso 1997, 60–1); *cf.* Kouka 2002, 47–8; Alam-Stern 2004, 918; Ivanova 2008b, 308–9. Thermi II (Lamb 1936, 20–1; Kouka 2002, 171); *cf.* Alam-Stern 2004, 937; Ivanova 2008b, 317–18. Troy (Korfmann 1989b); Yenibademli Höyük (Hüryılmaz 1998, 362–4; Hüryılmaz and Sevinç 1999, 312–14); *cf.* Ivanova 2008b, 333.

37 Erkanal 2008, 168; Şahoğlu 2008, 485, 496, fig.3.

38 Knitter *et al.* 2012; Knitter *et al.* 2013, 4.

39 Horejs *et al.* 2010; Horejs *et al.* 2011; Mehofer 2014, 464–6.

40 Horejs 2009b, 365–6; Horejs *et al.* 2011, 44.

Prehistoric culture at Çine-Tepecik and its contribution to the archaeology of the region

Sevinç Günel

Introduction

Increasingly, archaeological research in Western Anatolia has begun to yield new prehistoric data to define the cultural structure of the region pre-dating the EBA. The geographical location of Western Anatolia plays an important role in the cultural development of the region, as well as in defining the nature of interregional cultural relations. The Meander Plain, which has the deepest valleys in Western Anatolia, has many small passageways serving as natural connections between Central and Western Anatolia. The site of Çine-Tepecik lies in this region, in the modern province of Aydın, in the midst of a large plain near the Çine River, a southern tributary of the Büyük Menderes (Meander) River to the east.”

In this region, the site of Çine-Tepecik is located in the modern province of Aydın near the Çine River, one of the southern tributaries of the Büyük Menderes (Meander) River. Çine-Tepecik lies centrally in the midst of a large plain, along the course of the Meander, which connects with the Çine River to the east. Excavations and research at the mound have revealed important

clues to our understanding of the still little-known prehistoric cultures of this region.

Çine-Tepecik has a long settlement history spanning the Aegean Late Neolithic to the end of the Carian Geometric period. In this chronological development, the 2nd millennium BC settlement on the mound (level II) indicates a settlement plan with a defence system (Fig. 55.1),¹ architectural remains and finds dating to the 2nd millennium BC. According to the stratigraphic development of the mound, level III has revealed EBA remains, while level IV, the lower layer of the Bronze Age settlement, contained remains from the pre-Bronze Age, ascribed to the Chalcolithic period.² Traces of early cultural remains also spread to the south and west of the mound.

Prehistoric remains and finds at the mound

To the west of the mound, beneath level II 1–2, red and burnt mud-brick deposits characterize the beginnings of the EBA as well as earlier periods. Level III can be clearly traced due to the well preserved remains of a building. The walls were built with larger stones set in the face of the wall, while smaller ones were placed in between. The preserved section of the building is oriented in an east-west direction and has a rectilinear plan 6.5 m long and 12 m wide. Architectural remains consisting of burnt mud-brick fragments from the early phase of the building show signs of a devastating fire (Fig. 55.1, area 1). Inside the building, besides fragments of different sorts of pottery, bowls and jars point to the domestic character of the structure. Various vessel fragments, spindle whorls, flint and obsidian blades and grinding stones were also discovered in this architectural layer and its surroundings. Remnants from even earlier periods continue to the north and northwest of the building. In addition to these finds, to the south of the mound, mud-brick remains and finds show similar cultural traits. There are ceramics, terracotta loom weights, and bone tools as well as stone axes belonging to the same cultural level in this

area.³

The early settlement on the mound extends westwards outside the 2nd millennium BC fortification wall (Fig. 55.1, area 2). Within this area, associated with a deposit of severely burnt soil, are wall fragments that probably belonged to a single structure in the late phase of level IV. Immediately to either side of this structure, there are architectural remains with a circular plan. The remains measure 1.12 m and 1.2 m long in north-south and east-west directions respectively.⁴ This roughly circular building, as well as the adjoining areas, must have been domestic in purpose. In the circular buildings, jars and grinding stones have been found.⁵

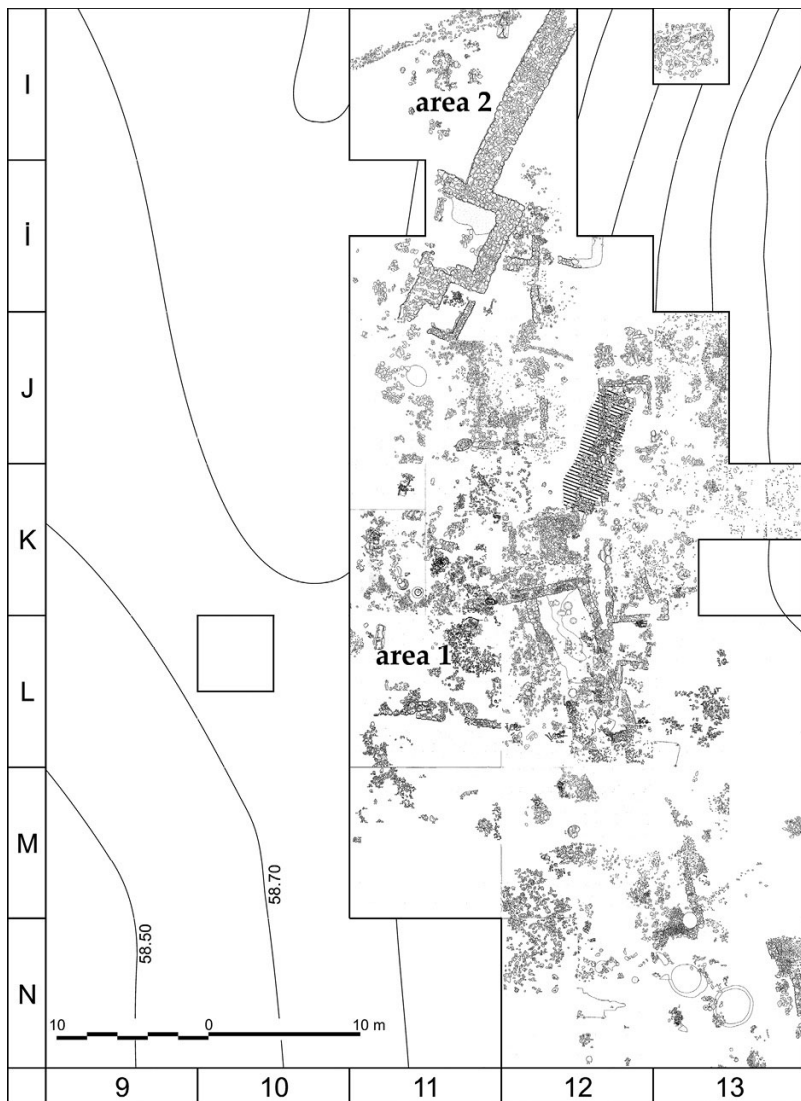


Figure 55.1. Plan of architectural remains at Çine-Tepecik, stratigraphical development of the mound, and Chalcolithic remains; Area 1–2.

Cultural definition of level IV according to finds

Pottery

Ceramics from these earlier deposits consists of fine, medium-fine

and medium ware. From the material, technique, decorative style and form, they represent pottery belonging to the pre-Bronze Age (level IV). Among the ceramic finds, bowls and jars are the most common. The bowls belong to medium-fine and medium reddish-brown and grey wares. Bowl types are shallow round-bodied and deep round-bodied. The rims are thickened on the interior. Bowl handles with knobs in particular were recovered in great quantity. Jars are usually coarse and round-bodied. Vessels also have either knobbed, horned handles or handles decorated with incisions and encrustations (Figs 55.2–3). Amongst the medium-fine grey and dark grey pattern burnished pottery, motifs such as diagonal lines, crosshatching and zigzags have been seen. A pattern burnish consisting of parallel diagonal lines was applied on the interior surface of the vessels. In this context, the crosshatched motif on panels on grey ware bowls is the most popular motif during this time (Fig. 55.4a-b). Besides the grey ware on this level, red-ware bowl fragments, with pattern burnishing on the interior surface, display the characteristic form and decorative style of this period.

Regarding the pottery, the shapes and the motifs correspond to the pattern burnished pottery tradition at Western Anatolian coastal settlements during this time. Concerning the pattern burnished pottery, the best parallels for the grey pattern burnished bowls, in terms of both form and crosshatched motifs placed in panels at regular intervals on the interior of the bowls, come from Gülpınar, Beşik-Sivritepe, Kumtepe IA, Malkayası Cave, Tigani on Samos, and Vathy III on Kalymnos,⁶ although parallel diagonal lines and zigzags are known from other sites such as Gülpınar, Beşik-Sivritepe, Tigani III and Kephala.⁷ Horned handles extending from the top of the rims are also seen among the handle forms of Tigani I/II and Emporio X-VIII on Chios, Gülpınar, Beşik-Sivritepe, Hanaytepe, and Aşağı Pınar.⁸ In addition, the most characteristic handle type in cultural Level IV at Çine-Tepecik is the bowl handle with a knob. This type of handle is also present at Gülpınar.⁹ Chronologically, Tigani II is contemporary with Emporio IX,

Gülpınar, Beşik-Sivritepe and the period before Kumtepe IA, while Tigani III is contemporary with Emporio VIII, Kumtepe IB and Beycesultan Late Chalcolithic 1. The dating of Tigani IV corresponds with Emporio VII, Kumtepe IB (late) and Beycesultan Late Chalcolithic 3.¹⁰ A similar chronological definition according to the pottery can be seen in the Troad.¹¹



Figure 55.2. Grey and reddish-brown ware bowls, jars and handles with knobs and incisions, level IV.



Figure 55.3. Grey and reddish-brown ware bowls, jars and handles with knobs, incisions and encrustation, level IV.



Figure 55.4. Grey ware pattern burnished bowl fragments with crosshatched lines, level IV.



Figure 55.5. Cheese-pot fragments, level IV.

Among the pottery, bowl and handle shapes correspond to the local pottery tradition of Tepecik. Similarly, examples of so-called cheese-pots and various types of decorated handles can also be seen within the pottery repertoire of this area (Fig. 55.5). Cheese-pots, which have a wide geographical distribution during the Chalcolithic and Early Bronze Age, have lugs with relief decoration, some resembling the snakes from Çine-Tepecik (Fig. 55.6). The same lugs with relief decoration are attested at Malkayası and İsa Mağarası in the region of Latmos to the west of Çine-Tepecik.¹² These examples reflect a pottery tradition in Çine-Tepecik belonging to the Early/Middle Chalcolithic periods, and in terms of pottery, are contemporary with the surrounding cultures, already represented by such sites as Gülpınar, Beşik-Sivritepe, Kumtepe IA, Liman Tepe, and Malkayası in Western Anatolia and Tigani II, Emporio IX-VIII, and Vathy III on the Aegean islands. On the other hand, they also represent a culture that covers periods earlier than the Late Chalcolithic of Beycesultan (Fig. 55.7).

According to this data, the earliest settlement on the mound at Çine-Tepecik can be evaluated in the scope of its cultural and chronological structure. First of all, the pottery findings show that

the best parallels for the pattern burnished bowls and handles both in terms of form and decoration come from the surrounding cultural regions. This demonstrates Çine-Tepecik's relationship to the Eastern Aegean islands as well as Thrace to the north. The pattern burnished motifs seen on the vessels reflect the decorative tradition of the Early/Middle Chalcolithic periods in a chronological development similar to the pottery repertoire of Western Anatolia and the Aegean Late Neolithic.

Marble vessels and figurines

Besides pottery, the early settlement at Çine-Tepecik also yielded fragments of marble vessels and figurines. These examples, belonging to marble bowls and pointed rhyta at the site, help us to identify two main types. The marble vessel with a tapering body, a form very common in Western Anatolia and the Aegean islands, is represented by a pointed bottom fragment at level IV at the site (Fig. 55.8). The most important evidence related to the production of this type of marble vessel in Western Anatolia pre-dates the EBA and comes from a workshop site called Kulaksızlar.¹³ However, since no marble workshops are known on the Aegean islands, attention is directed to the Kulaksızlar workshop, where manufacturing debris pointing to the production of a rhyton type with a pointed bottom and Kilia figurines has been identified.¹⁴ The recovery of numerous fragments of unfinished marble pointed rhyta with production marks such as pecking and drilling shed light not only on our understanding of the production techniques of marble vessels in Western Anatolia, but also on those marble vessels derived from other unknown workshops on the Aegean islands.¹⁵ Fragments representing marble pointed rhyta have already been reported from several Western Anatolian sites, including Kumtepe, Beşik-Sivritepe, Bozköy-Hanaytepe I, Gülpınar, and Demircihöyük.¹⁶ A fragment of a marble pointed rhyton dated to the Early/Middle Chalcolithic period was also reported from Liman Tepe in Izmir region.¹⁷



Figure 55.6. Cheese-pot fragments with reliefs, level IV.



Figure 55.7. Map showing major sites with pattern burnished pottery in Western Anatolia and the Aegean.



Figure 55.8. Fragment of a marble rhyton with a pointed bottom.

As for the distribution area of the conical rhyton tradition in the Aegean, Kephala on Keos in the Cyclades presents a chronology that extends back to the Final Neolithic period.¹⁸ A marble pointed rhyton found among burial goods in Kephala has a pointed base, a conical body, and a vertical handle.¹⁹ A conical rhyton fragment from Tigani II-III, as well as a marble fragment

with a vertical handle from phase IV, are similar to the examples from Kephala.²⁰ Marble pointed rhyta were also reported from Naxos and Koukonisi on Lemnos.²¹ On the other hand, Varna cemetery finds indicate the northern extent of this distribution area. This rhyton has been considered to be a possible import from Anatolia. The recovery of an obsidian blade of Central Anatolian origin found in this burial supports this interpretation.²²



Figure 55.9. Heads of marble Kilia figurines.

In addition, fragments of the so-called marble Kilia figurines have also been identified at Çine-Tepecik. The heads of Kilia figurines at the site appear in two different types (Fig. 55.9). In the first type, the head is triangular in shape, with the back of the head inclined to the interior. The neck is narrow and long. The face is worked with the nose as a vertical relief, while the eyes are portrayed as round reliefs. Ears are not depicted. The second type at Çine-Tepecik is differentiated by an oblate oval form and depiction of ears. Comparable figurines have been found on the Western Anatolian littoral from the Troad in the north to Lycia in South-West Anatolia.²³ The material recovered from the Kulaksızlar workshop shed light on the manufacture of these figurines. There are also two torsos among the Çine-Tepecik marble figurine assemblage (Fig. 55.10). The shoulders are

prominently shaped and round, while arms are bent at the elbows. In one of the Çine-Tepecik figurines, the body is pierced (Fig. 55.10).²⁴ This torso is similar to marble figurines from Hanay Tepe, Papazköy, Kırşehir-N. Schimmel collection, Elmalı-Kozağacı, and prehistoric level VIII A at Aphrodisias.²⁵

An example in the form of a shell pendant recalling the Kilia figurines with a hole in each shoulder was found in the Chalcolithic level 2A at Can Hasan.²⁶ Another example recalling the Can Hasan pendant was found at Tigani III on Samos;²⁷ this example, made from bone, has rounded shoulders and the position of the arms bent at the elbows is reminiscent of the Kilia figurines. Both the Can Hasan and Tigani pendants attract attention since they have a similar style of workmanship and holes at the top for suspension, though they are made from different materials. Other examples that are different in their details but similar to the Can Hasan and Tigani examples in shape can be followed in the Balkans.²⁸ The second figurine torso at Çine-Tepecik reflects all aspects of Kilia figurines in the way that the neck, arms and body are worked (Fig. 55.10).



Figure 55.10. Torsos of marble Kilia figurines.

These examples from different geographical regions show variation in terms of material, such as marble, bone, and shell, and also in terms of their use, as either figurines or pendants. The Tepecik marble figurine torsos add new examples to the pierced-pendant type on the one hand, and to Kilia figurines on the other. Considering the discovery contexts of some figurines in particular, a chronological development extending from the Late Chalcolithic to the beginning of the EBA is suggested for the dating of Kilia figurines. The Yortan example in this group was found in an EBA burial,²⁹ whereas the Beşik-Yassitepe example is thought to have belonged to the Chalcolithic settlement.³⁰ In addition, a figurine found in phase II of Karain Cave is considered a Chalcolithic find.³¹ The two Kilia figurine torsos from level VIII A at prehistoric Aphrodisias are dated to the middle of the 5th millennium BC on the basis of radiocarbon dating.³² The context

of the Kilia figurines at Çine-Tepecik has enabled a more reliable dating based on stratigraphy. The position of the Akhisar-Manisa region and its vicinity as a commercial hub in the distribution of Kilia figurines has been shown to be an important factor in the trading of marble objects (figurines and vessels) manufactured in the Kulaksızlar workshop(s). Natural routes beside the main rivers of Western Anatolia facilitated transportation to other areas.³³ Accordingly, in addition to roads leading to Troy and its vicinity, the objects are considered to have reached Aphrodisias via natural extensions of the Büyük Menderes (Meander) River to the south, as well as Karain Cave and Kozağacı through similar tributaries.³⁴ To this distribution zone of Kilia figurines, the area of the Çine Plain can now be added with the new examples found at Çine-Tepecik. The level IV remains found at Çine-Tepecik are represented by the Chalcolithic Western Anatolian decorated ceramics tradition, worked bone tools, stone tools and a very rich chipped stone industry with marble vessels and figurines. This evidence indicates an historical sequence that parallels the Late Neolithic period in the Aegean chronology.³⁵

Conclusion

The most important assemblage at Çine-Tepecik, among the cultural remains going back to the beginning of the Chalcolithic period, consists of the local ceramics of the region. Pattern-burnished vessels, which constitute a rich group with varied motifs, highlight the decorated vessel tradition at Çine-Tepecik and play an important role in the chronological distinction of the early periods. In addition to ceramics, the variation and density of the worked bone tools and chipped stone industry present supporting data for the description and chronology of the prehistoric cultures in the region. Marble vessels and figurines among these finds shed light on the distribution area in Western Anatolia, as well as indicating the existence of tight interregional relations. The archaeological data from Çine-Tepecik have shed

new light on the cultural influences and external contacts impacting the region. Unearthing the early settlement at Çine-Tepecik has made an important contribution to regional archaeology and the chronological definition of Chalcolithic culture in Western Anatolia.

Notes

- 1 Günel 2008a, 129–39; Günel 2010a, 460–7, fig. 1; Günel 2010b, 25–49; Günel 2011a, 1–8; Günel 2012a, 7–20; Günel 2012b, 55–80.
- 2 Günel 2008b, 78, fig. 6–9; Günel 2011b, 217–32; Günel 2014.
- 3 Günel 2008b, 78, fig. 6–7, 9.
- 4 Günel 2006, 20–1, plan 1–2; Günel 2007, 234–6, fig. 1–3.
- 5 Günel 2007, 235, plan 3, fig. 1–3.
- 6 Korfmann 1996, 51, fig. 44.1; Lamb 1932, 127, fig. 13, 5; Peschlow-Bindokat 2006, 85, fig. 82. a-b; Takaoğlu 2006, 298, 305, fig. 10. 26. For comparison, see, Tigani II (Felsch 1988, 49, pl. 19.5, pl. 57. 143); Tigani III (Felsch 1988, 56, 168–9, pl. 27. 1–2, pl. 62. 255); Tigani IV (Felsch 1988, 65, 68, 185, 191, pl. 38. 4–5, pl. 41.3, pl. 68. 367–8, pl. 71. 435–7); Vathy Cave (Benzi 2008, 88, 92–3, fig. 20).
- 7 Coleman 1977, 81, 107, pl. 40–3; Felsch 1988, 51, 60, 165–6, 175–6, 183, pl. 32. 3, 5, pl. 37. 1, 4, pl. 60. 233–4, pl. 64. 291, 295, pl. 67. 350–1; Kiyak et al. 2010, 38, fig. 3; Lamb 1932, 127, fig. 13; Takaoğlu 2006, 298, fig. 10. 24–9.
- 8 Felsch 1988, 207, pl. 79. 4b-c; Hood 1982, 271, 286, fig. 128. 225, 135, pl. 37. 335–7; Lamb 1932, 127, fig. 14. 3; Lamb 1932, 116, fig. 2. 17; Takaoğlu 2006, 295, fig. 6. 13–4, fig. 8; Parzinger & Schwarzberg 2005, fig. 15, pl. 5.
- 9 Takaoğlu 2006, 295, fig. 6. 1–4.
- 10 Felsch 1988, 72–95, table 2.
- 11 Korfmann & Krömer 1993, 139–69.
- 12 Peschlow-Bindokat 2006, 85, fig. 81a.
- 13 Dinç 1996a; Dinç 1996b; Takaoğlu 2001; Takaoğlu 2002; Takaoğlu 2005.
- 14 Takaoğlu 2005, 161, fig. 3–4.
- 15 Akdeniz 2010, 70; Şahoğlu & Sotirakopoulou (eds.) 2011, 283–5, cat. 176–86; Takaoğlu 2011, 161, fig. 3–4.

- 16 Blum et al. 2011, pl. 12.6; Efe 1988, 79, pl. 37; Sperling 1976, 354, pl. 70. 830; Takaoğlu 2006, 309; Takaoğlu 2006, 309, fig. 14; Takaoğlu & Bamyacı this volume.
- 17 Şahoğlu & Sotirakopoulou (eds.) 2011, 282, 376, cat. 174–5; Takaoğlu 2011, 161; Tuncel & Şahoğlu this volume.
- 18 Renfrew 2010, 86; Sotirakopoulou 2008a, 537, fig. 2.
- 19 Coleman 1977, 64, pl. 23.103, 109, pl. 67.103, 109; Stampolidis & Sotirakopoulou 2011, 30, fig. 4. Regarding this vessel, its similarity to conical vessels production at Kulaksızlar rather than on the islands is mentioned, based on the type and color of the marble as well as the production technique and dimensions, and the difference in the vertical handle arrangement is emphasized; Takaoğlu 2005, 37.
- 20 Felsch 1988, 221–2, pl. 75. V23, V26.
- 21 Getz-Gentle 1996, 52, 54, fig. 29–30, pl. 22; Sotirakopoulou 2008a, 537; Takaoğlu 2005, 37.
- 22 Takaoğlu 2005, 37. See also Takaoğlu & Bamyacı this volume.
- 23 For comparison, see, Caskey 1972b, 192–3, pl. 44; Dinç 1995, 94–5, pl. 6.b; Meriç 1989, 158, fig. 6; Schmidt 1902, 282, no 7643; Seeher 1992, 154–61; Takaoğlu 2002, 79–80, fig. 8; Takaoğlu 2005, 38, fig. 5.17
- 24 Günel 2014.
- 25 Elmalı-Kozağacı (Ormerod 1909/10, 105, pl. VII.18–9); Hanay Tepe (Schachner 1999, 21, fig. 31.7); Papazköy (Seeher 1992, 158, fig. 2c); Kırşehir-Schimmel Collection (Seeher 1992, 161, fig. 2b); Prehistoric Aphrodisias (Kadish 1971, 129; Joukowsky 1986, 526, 532, fig. 379. 31, 385. 47).
- 26 French 1963, 34–5, pl. II.d.
- 27 Felsch 1988, 220, pl. 46. 8, 85. V 12.
- 28 Bone and marble idols with variations in body shape from Varna graves paralleling Karanovo VI culture in Bulgaria, as well as the Pietrele–Gumelnița culture, Gumelnița and Renie finds, draw attention with their similar shapes and holes, see Berciu 1967, 60, fig. 18.2; Dumitrescu 1924, 337, fig. 10.1; Ivanov & Avramova 2000, tomb no. 1, 23, no. 3, 11; Morintz & Roman 1968, 55, fig. 5.5; Seeher 1992, 169, fig. 10.d.
- 29 Kamil 1982, 20, fig. 84. 292; Seeher 1992, 158, 163.
- 30 Korfmann 1985, fig. 8. LL83.23; Mellink 1984, 446, fig. 3;

Seeher 1992, 163.

31 Seeher 1988, 224.

32 Joukowsky 1986, 219–21, 526, 532; Kadish 1971, 129.

33 Takaoğlu 2002, 80; Takaoğlu 2005, 40.

34 Takaoğlu 2002, 80; Takaoğlu 2005, 40.

35 Günel 2006, 20–1; Günel 2008a, 136–8; Günel 2011b, 217–32.

Cave habitations in Chalcolithic Lycia: The case of Tavabaşı near Tlos

Taner Korkut, Gül Işın and Turan Takaoğlu¹

Introduction

It was after the initiation of archaeological investigations at the Bronze Age site of Karataş-Semayük on the Elmalı Plain in 1963 by M. Mellink from Bryn Mawr College that we first began to obtain a picture of prehistoric life in inner Lycia in South-Western Anatolia.² Besides Bronze Age remains, Mellink's valuable investigations also identified the presence of Late Chalcolithic habitation in Lycia through the finds at Karaburun, Boztepe and Bağbaşı near Karataş-Semayük.³ However, one of the most important contributions of this work on the Elmalı Plain was C. Eslick's recognition of the Middle Chalcolithic period, representing roughly the first half of the 5th millennium BC, in the archaeological record of Lycia for the first time.⁴ Recognition of the Middle Chalcolithic period among finds at Kızılbél and Lower Bağbaşı was therefore an important step since this period is one of the poorly-understood stages of Western Anatolian prehistory. What was happening in upland areas located between the Lycian coastal zone and inner regions in the Middle Chalcolithic period has consequently become a curious archaeological issue, as this mainly mountainous region of Lycia was often considered to be a

marginal environment with little human activity in prehistoric times.

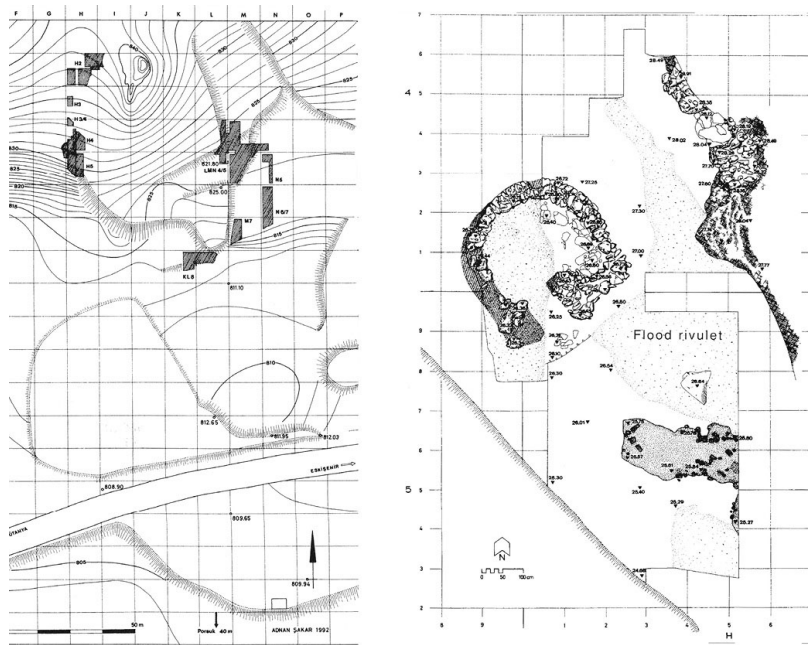


Figure 57.3. Plan of Orman Fidanlığı and a detail showing houses.

Recent archaeological investigations initiated at the ancient Lycian city of Tlos in the hinterland of Fethiye began to broaden our knowledge of pre-Bronze Age Lycia (Fig. 56.1). Because Tlos was among the major Western Anatolian cities mentioned in Hittite texts as *Tlawa*, the pre-classical past of the city and its territory has attracted a great deal of attention among Lycian specialists. In this context, a team involved in the Tlos excavations has begun to focus more on exploration of the pre-Classical sequences at Tlos and its surroundings.⁵ Archaeological soundings conducted in the center of ancient Tlos in the stadium area near the acropolis yielded evidence of habitation dating back to as early as the beginning of the 5th millennium BC.⁶ The earliest evidence that the team came across is from the remains of a mound-type settlement identified at the mouth of the Girmeler

Cave. Situated in the valley below the city of Tlos, the Girmeler Cave has revealed proof of habitation from the end of the 9th to the 4th millennium BC.⁷ A number of pot sherds that could be ascribed to the Middle and Late Chalcolithic period have also been identified among the pottery assemblage of the Girmeler Cave, though they were not found in stratigraphic contexts.

The site and its remains

Archaeological surveys conducted in the mountainous terrain of Tlos in 2011 identified two caves located very close one another in a district called Tavabaşı, which are the focus of this study. These two caves, an upper cave and a lower cave close by (Fig. 56.2), are situated on the northern slope of the mountain range approximately 900 m above sea level. An agricultural plain with a perennial spring has been attested about 60 metres below. The two caves at Tavabaşı yielded evidence mainly for Middle Chalcolithic habitation roughly occupying the second quarter of the 5th millennium BC, which was previously rarely attested in Lycia.

The upper cave, which lies just above and to the left of the lower cave, has a wide entrance 19 metres across. It is composed of two galleries and a small room. Due to the large boulders that had fallen from the ceiling, it was very difficult to access and examine this cave in detail and open trial trenches there. A small assemblage of artefacts mainly left over from illicit digs was collected from the interior. The homogeneous pottery assemblage identified over the surface of the cave is easily dated to the Middle Chalcolithic period, corresponding to the first half of the 5th millennium BC. Remains of cisterns and pot sherds inside and outside the upper cave indicate that this locus was also settled in Greek and Roman times as well as in the Byzantine period.

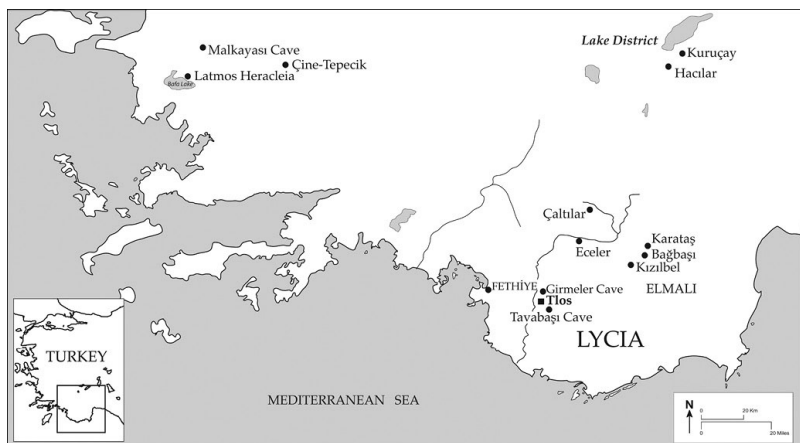


Figure 56.1. Map locating Tavabaşı and other major sites mentioned in the text.

Due to the dangers of working in the upper cave, the lower cave at Tavabaşı became the focus of investigations. This lower cave runs inwards perpendicular to the valley in front of it. A terrace is present in front of the weathered rock face (Fig. 56.3). The lower cave consists of a small chamber measuring 10 m long and 6 m wide and is accessible only through a narrow entrance measuring 1.2 m high and 0.6 m wide, preventing daylight from reaching the interior. In order to gain insight into the stratification of the cave, we decided to dig a trial trench. A 2 × 2 m trial trench was laid out on the western edge of the lower cave in an area previously disturbed by looters. The trench, which reached down to bedrock at a depth of 2.5 m, yielded a 60 cm thick Middle Chalcolithic stratum formed of loose dark-brown soil above the virgin soil (Figs 56.4–5). A burnt layer with ash and other traces of fire was identified on the floor of this Middle Chalcolithic stratum. There was no indication of structures but irregular pieces of rock up to 25 cm in length were found. A small assemblage of pot sherds and animal bones retrieved from this stratum provides information on the cave's users. The small amount of animal bones found above the ash layer represent sheep/goats, cattle, wild goat

(*Capra aegagrus*), fallow deer (*Dama dama*), and wild boar (*Sus scrofa*), indicating that hunting was an important subsistence activity at the sites in addition to agricultural pursuits. The trial trench unfortunately yielded almost no evidence of groundstone objects such as querns, handstones, mortars and pestles, although several fragments of pithoid vessels were found, which could be accepted as evidence of utilisation of the cave for storage.

A chronological estimate obtained through comparisons of pottery from Tavabaşı with that found at several sites in Western Anatolia and the adjacent Eastern Aegean islands is confirmed by radiocarbon dates. Two samples, one of charcoal and the second a bone sample, were taken from the Middle Chalcolithic stratum for radiocarbon determinations. The AMS radiocarbon dating of these two samples was carried out by the Waikato Dating Laboratory in New Zealand, and gave a range for the lower cave from *ca.* 4838 to 4459 cal BC. These two radiocarbon dates from Tavabaşı correspond to roughly 300–350 years of occupation in the second quarter of the 5th millennium BC. Evidence from the lower cave therefore suggests that additional cave sites might be expected from this period in addition to the settlements located on fertile alluvial plains.

The pottery from the trial trench in the lower cave is fragmentary but quite sufficient to obtain clues about the cultural and chronological affiliation of the site. Both open and closed vessels of various shapes can be identified among this representative pottery assemblage. Excluding fragments of several pithoid vessels with greyish-black cores and reddish-brown-surfaces, the pottery is rather homogeneous in fabric and consists of both fine and semi-coarse wares. A reddish-brown clay was used to manufacture the semi-coarse vessels. The fine wares were generally made from greyish-brown fabric and their surface is either finely smoothed or moderately burnished. The surface colour ranges from brown to grey and black. Some of the pots have a mottled surface because of uneven firing. The most notable

pot shapes are rounded bowls, flaring-rim bowls, open bowls with horn-handles, bowls with high handles rising above the rims, bowls and jars with mushroom-headed handles, necked jars with strap handles with knobs or pinched-up ridges, bowls and jars with knob-like decorations, pattern-burnish decorated necked jars, incision decorated necked jars, and *pointillé*-decorated small jars (Fig. 56.6). Several white-on-dark painted sherds with linear decoration have also been noted among the pottery assemblage. Pottery from the lower cave appears to correspond more or less with pottery from the upper cave.

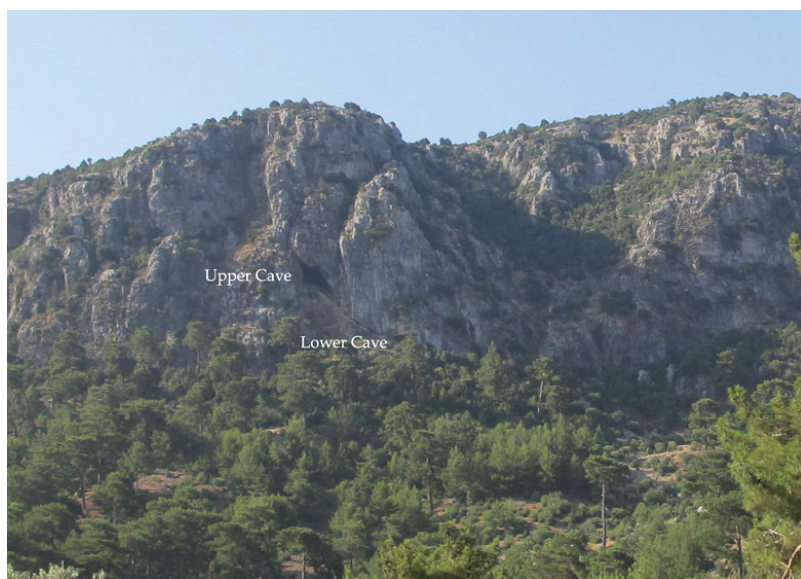


Figure 56.2. A view of the upper and lower caves at Tavabaşı in the steep cliffs from the south.



Figure 56.3. Entrances of the lower cave with the façade with rock paintings.



Figure 56.4. A view of Trench A in the lower cave.

The pottery from both caves finds some parallels among Western Anatolian sites. These include Malkayası Cave and Çine

Tepecik IV to the north of Tavabaşı, Liman Tepe, Ulucak II, and Yeşilova III in the İzmir region in Central-Western Anatolia, Kumtepe IA, Beşik-Sivritepe, Hanaytepe, and Gülpınar III in the Troad, as well as sites of the Eastern Aegean islands such as Emporio X–IX on Chios, Tigani I–II on Samos, Kalythies I–II on Rhodes, Vathy Cave on Kalymnos, and Kos. In particular, the pattern-burnished pottery identified on nearly a dozen sherds from Tavabaşı bears a close resemblance to that found at Malkayası Cave and Çine-Tepecik, Liman Tepe, Ulucak, Gülpınar, and Beşik-Sivritepe in Western Anatolia, as well as Kalymnos, Tigani on Samos and Emporio on Chios on the Aegean islands.⁸ Wares with white paint on a dark-burnished surface represented by several sherds from Tavabaşı have parallels at Malkayası Cave, Gülpınar, Vathy Cave on Kalymnos, Kalythies Cave on Rhodes, and Emporio on Chios.⁹ Jars and bowls with mushroom-shaped handles commonly attested at Tavabaşı closely resemble those at Hanaytepe, Gülpınar, Liman Tepe, Yeşilova, and Beçin in Western Anatolia.¹⁰ Although local variations occur in the Middle Chalcolithic pottery of Tavabaşı, some of the pot shapes from the Tavabaşı assemblage are analogous to the pottery repertoires of other sites of this period. It should also be mentioned that there are as many differences as similarities between the pottery assemblages of Tavabaşı and that of other sites in Western Anatolia and the Eastern Aegean islands. There appears to have been a sense of cultural unity in the first half of the 5th millennium BC covering most parts of Western Anatolia and the Eastern Aegean islands. The mechanisms of this cultural uniformity might be explained by the extent of exchange that took place through seafaring among these regions.

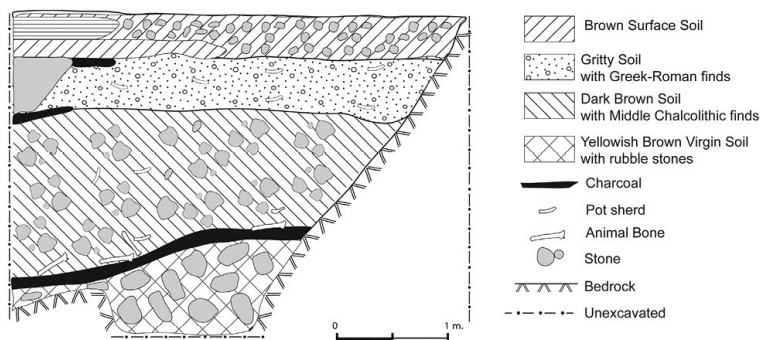


Figure 56.5. Section drawing of Trench A showing stratification.

The lower cave at Tavabaşı is also important for prehistoric rock art in Western Anatolia. A group of figures painted in red have been documented on the weathered surface of the rock face above and to the left of the small entrance to the lower cave. These rock paintings are characterised by various geometric motifs, ornaments, unidentified signs and human figures (Figs 56.7–8). In terms of style, they strongly resemble rock paintings identified at numerous locations in the Latmos Mountains to the north-west.¹¹ Previously, it was accepted that the Latmos examples were the only testimonies of rock art in western Anatolia. Tavabaşı presents new evidence for the southward expansion of this tradition. It is probable that the paintings observed on the façade of the lower cave date from the period when the cave was inhabited, meaning that the rock paintings should date to the first half of the 5th millennium BC at Tavabaşı. This dating is more or less in accordance with the date proposed for rock paintings in the Latmos Mountains, which is accepted to be from the late 6th and 5th millennium BC based on the stylistic comparison of figures with those observed on painted pottery from the Lake District.¹²

Discussion of evidence

Up to the present, no site with Middle Chalcolithic evidence had

been documented in the coastal zone of Lycia for a number of reasons. Middle Chalcolithic period sites are generally represented by short-term occupations which makes them invisible on the surface. Geomorphological changes or vegetation cover make them almost undetectable on the rough surface terrain of the Lycian region. Located in the uplands in the vicinity of Tlos, the lower and upper caves at Tavabaşı illustrate one way in which the populations of this period could have lived. Tavabaşı also occupies a gap on the land-based route linking the coastal zone of Lycia and the South-Western Anatolian hinterland in the Chalcolithic period. There was probably a second route passing through Tlos and running towards the north-east along the Eşen (Xanthus) River basin in this period. The settlements of Eceler and Çaltılar would have benefited from this river-based land route reaching to the Büyük Menderes (Meander) River Basin as early as the Late Chalcolithic period.¹³ The results of ongoing investigations at Çaltılar will demonstrate how a community managed to make a living at an elevation of 1250 m above sea level in the Lycian uplands.¹⁴



Figure 56.6. Typical Middle Chalcolithic sherds retrieved from the lowest stratum in Trench A.

Whether or not the lower cave indeed served as a cultic place such as an open-air sanctuary similar to sites with rock paintings in the Latmos Mountains is difficult to answer. If so, the cave would have enjoyed periodic use on certain days of the year for religious ceremonies, rituals and festivals, *etc.* Although periodic use of caves is plausible and archaeologically demonstrated elsewhere,¹⁵ this cannot be documented archaeologically at Tavabaşı at this point in the research.

The selection of caves for habitation in such an upland location as far from the coast as Tavabaşı is quite unusual when one considers the lack of cave sites in the entire Lycian region in the Middle Chalcolithic period. The Malkayası Cave in the Latmos Mountains area to the north of Lycia is a rare example showing evidence of settlement,¹⁶ while cave sites are common in this period on nearby islands such as Kalymnos and Rhodes in the Dodecanese.¹⁷ The decision to settle in such a marginal environment as Tavabaşı probably had something to do with the subsistence strategies adopted by the occupants of the cave. Ethnoarchaeological data leads one to consider the possibility that environmental, climatic, and topographic factors led the populations of Lycia to pursue seasonal activities. J. Yakar has argued that EBA farmers could have adopted a subsistence economy based on exploitation of more than one niche, requiring at least two seasonal settlements located in different exploitation zones. Yakar notes that:¹⁸

The natural environment in Lycia provides rural communities with a choice of subsistence strategies which include a broad-based economy combining agriculture, horticulture, and pastoralism which could be supplemented by hunting, fishing, and gathering. However, this type of economy requires some degree of mobility in the pattern of settlement due to the multi-resource exploitation.

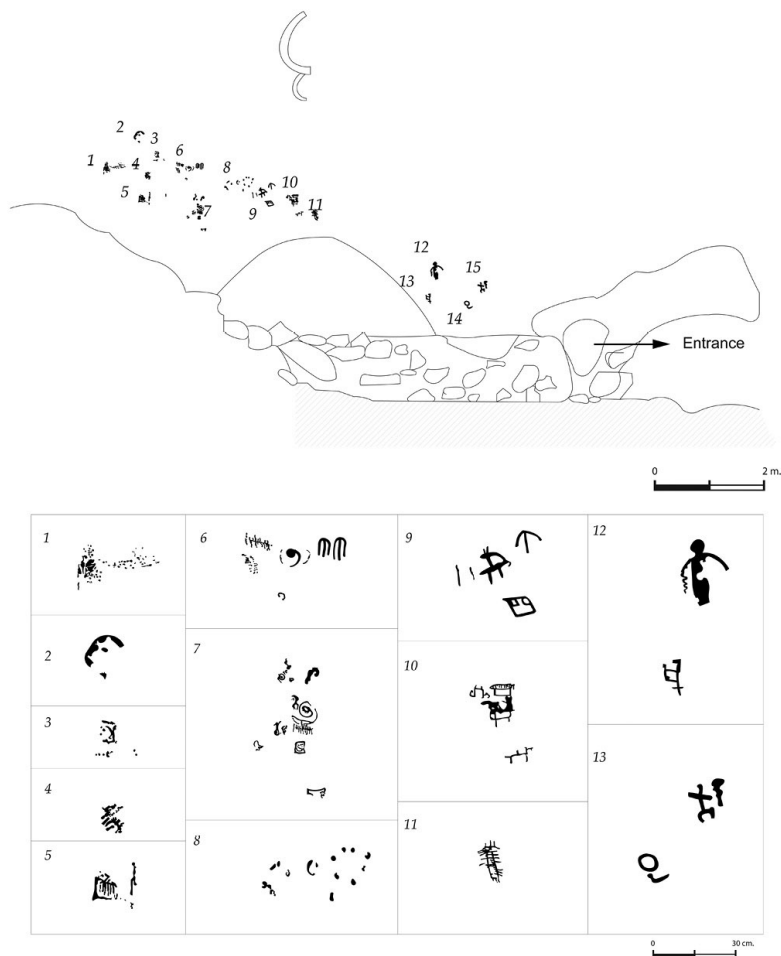


Figure 56.7. Drawings of the façade with rock paintings, lower cave.



Figure 56.8. Scene 9 of the rock paintings on the façade of the lower cave.

Although this attractive theory favouring transhumance requires further archaeological demonstration and research in Lycia, such a subsistence strategy favoured for EBA Lycia might also have been in existence in the Chalcolithic period. A similar argument was developed by D. French, who proposed that a pattern of transhumance might have existed between lowland and highland areas in 6th millennium BC Lycia, in which sites such as the Girmeler Cave could have served as a station for transhumants.¹⁹

In summary, it is reasonable to state that the recent finds from Tavabaşı enrich our current knowledge of the Lycian Middle Chalcolithic period. Our increasing knowledge of the Middle Chalcolithic in Western Anatolia, now complemented by Tavabaşı, demonstrates that the 5th millennium BC was a crucial stage in the Eastern Aegean world. The similarities observed between the material culture of sites in Western Anatolia and the Eastern Aegean islands might have been the result of much more than casual contacts.²⁰ There existed a form of cultural unity derived from an increasing level of cultural interactions and trade in the 5th millennium BC among communities of Western Anatolia and the Aegean islands, and this uniformity probably had its roots in the late 6th millennium BC. A research strategy involving

exploration of new cave sites not only in the upland regions but also in the coastal zone is necessary. Whether they were used on a seasonal or year-round basis, the lower and upper caves at Tavabaşı demonstrate what type of settlement could be expected in this period in upland locations far from the coastal zones. Furthermore, the rock paintings of the lower cave remain silent witnesses to the rock art of Lycia, representing the southern extension of a tradition now represented by the Latmos Mountains.

Notes

- 1 We are grateful to C. Eslick for commenting on the earlier version of this paper. This research was conducted under the supervision of the Department of Antiquities and Museums of Turkey and with the financial support of the Turkish Academy of Sciences (TÜBİTAK) (Project no. 111K227).
- 2 Mellink 1964, 269.
- 3 Mellink 1975, 355; Eslick 1992.
- 4 Eslick 1980, 8.
- 5 Korkut 2015.
- 6 Sezgin 2017.
- 7 For the results of the archaeological soundings undertaken at the Girmeler Cave with pre-pottery and pottery Neolithic finds, see Takaoğlu *et al.* 2014. For the Chalcolithic finds from Girmeler, see Köktürk 1996/1997; French 2008, 197.
- 8 Benzi 2008, fig. 20; Felsch 1988, pl. 19; Furness 1956, 187, pl. 17; Günel 2007, 78, fig. 7; Lamb 1932, fig. 13; Peschlow-Bindokat and Gerber 2013, fig. 44; Seeher 1985, fig. 16; Takaoğlu 2006, 298, fig. 10; Takaoğlu & Özdemir 2013.
- 9 Benzi 2008, figs 2–3; Hood 1981, 225, pls 33d, 40d; Peschlow-Bindokat and Gerber 2013, fig. 42; Sampson 1984, figs 2–3; Sotirakopoulou 2008a, 535.
- 10 Derin 2007, fig. 6; Lamb 1932, Figs 2.15–6; Takaoğlu 2006, figs 6, 8. See also Tuncel and Şahoglu this volume.
- 11 Peschlow-Bindokat and Gerber 2013, 69; Korkut *et al.* 2015.
- 12 Peschlow-Bindokat and Gerber 2013, 76.
- 13 Aksoy and Köse 2005; Momigliano *et al.* 2011; Yaylalı 2006, 9–10.

14 Momigliano *et al.* 2011.

15 Sampson 1988b; Sampson 1992.

16 Peschlow-Bindokat and Gerber 2013.

17 Furness 1956; Sampson 1984.

18 Yakar 1998, 815.

19 French 2008, 197.

20 Several Melian obsidian artefacts found in the Early Neolithic levels at Girmeler Cave clearly show that this part of Lycia participated in some kind of exchange system long before the 5th millennium BC, see note 4.

At the crossroads: Changing Chalcolithic settlement patterns in Phrygia

Ali Umut Türkcan¹

Introduction

Given the energy devoted to various aspects of Anatolia's cultural history, archaeological examination of certain periods and areas has long been neglected. There are many reasons for this, such as an absence of research agendas, geographical barriers, and concentration on the traditional regions of South-Eastern Anatolia, Cappadocia, and parts of the Marmara region. Only in the last two decades has the prehistory of the Western Anatolian littoral, as well as inner Western Anatolia with its many intermontane valleys cut by large river basins, begun to witness systematic survey projects and excavations (Fig. 57.1).

This paper attempts to re-address the balance by discussing settlement patterns from the Neolithic period to the EBA, with particular reference to the Chalcolithic period in Phrygia Region which is located at the junction of the Eastern Marmara region in the north-west part of Central Anatolia and the northern part of inner Western Anatolia, Phrygia is bordered by the mountains of the Western Black Sea region to the north. A synthesis of the surveys and excavations conducted in Phrygia will be presented, and similarities with other parts of Central Anatolia (mainly the

northern latitudes below the Pontic Mountains bordering the Black Sea) will be discussed.

Geography of Phrygia

North-Western Anatolia presents a rich and varied environment. The terrain is occasionally broken by volcanic massifs, high plateaus and coastal or intermountain plains. Some of the mountains, like Uludağ volcanic massif, are over 3000 m high. The deeply incised valleys along streams, rich in alluvial deposits, also provide easy access to the main Anatolian plateau. In this respect, the valley of the Sakarya River, running in a north–south direction, has always been the natural route between Central Anatolia and the Marmara region.² The region of Phrygia, the settlement patterns of which are discussed in this paper, is at the junction of the Eastern Marmara region and Central Anatolia, opening onto large valleys giving access to the south through Kütahya via the Porsuk valleys and to the east through Ankara.

The ancient geographical term Phrygia covered a large area with vaguely defined borders. The land was enlarged politically in the Hellenistic period by the Pergamene Kingdom. At that time, it extended to the south of Afyon and included a small portion of the Western Black Sea region.³ The main cultural component of Phrygia is the western central part of Greater Phrygia, which spreads through the Halys (Kızılırmak) River. The core of Phrygia is the “Phrygian Highlands”, a geographical term first introduced by the geographer E. Chaput and C.H.E. Haspels who devoted her life to uncovering Phrygian monuments.⁴ The term has been used ever since by researchers and archaeologists following in their footsteps.

In general terms, Phrygia covers the mountainous region between Eskişehir, Kütahya, and Afyonkarahisar. The area includes almost the entire Eskişehir province together with small portions of Afyonkarahisar to the south, Ankara province around Polatlı to the east, and Kütahya province. The western part is more

pronounced, with the valleys of the Porsuk River running through the mountains toward Kütahya province in the south, then becoming narrower to the west with relatively small valleys such as the İnönü and Bozüyük. The northern section of the region is surrounded by the Sündiken mountain range bordering the Eskişehir and Alpu plains. The zone has varying altitudes over 1100 m above sea level that contain Türkmen Dağ (1824 m at its highest point) in the west, Yazılıkaya plateau, and Mount Şaphane.⁵ The major river systems in the region are the Sakarya (Sangarios) and its long tributary the Porsuk, which flows approximately 460 km from west to east and is joined by many tributaries along its southern reaches. Within these two river basins, flat alluvial plains ideal for agriculture are another prominent feature of this landscape.⁶ The south-west section contains higher terrain, characterised by a series of mountains and hills with flat tops and steeply sloping sides divided by deep valleys. The central part of Phrygia is also called the Upper Sakarya basin; the landscape here is characterised by the great Sakarya (Sangarios) River and its tributaries flowing towards the north-west and large flat alluvial plains, where the average altitude is 850 m.⁷



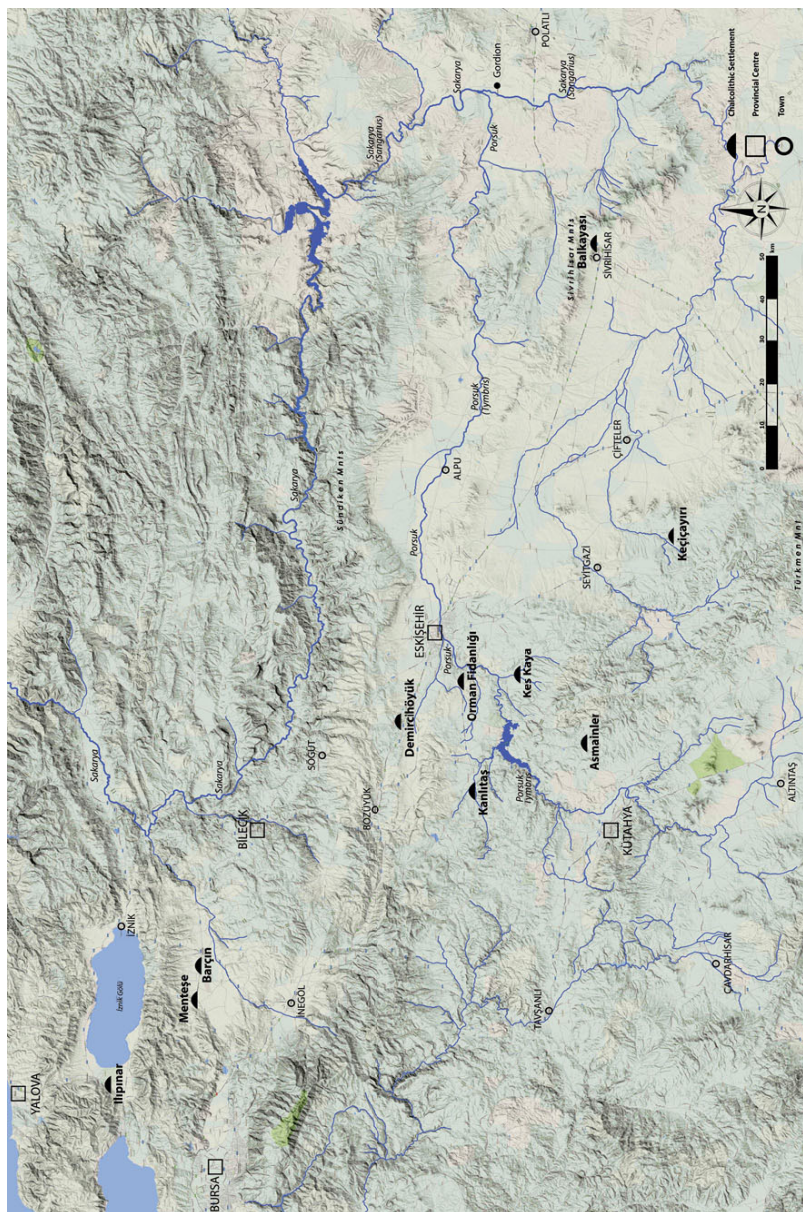


Figure 57.1. Topographical map of Phrygia showing major sites mentioned in the text.

There are other ways of demarcating this frontier zone in the west. Measuring its stability over time since the Early Bronze Age,

not many höyüks (mounds in Turkish) are detectable after passing west and north of Bozüyük, with a few exceptions south of the Lake Iznik basin in Bursa province. Across the wooded passes after Bozüyük and to the southeast towards Bursa and northwest along the western banks of the Sakarya River, mud-brick housing, once the material base upon which prehistoric mounds flourished, diminishes in popularity and reveals the permanence of this frontier and the permanence of its environment. In contrast, after Bozüyük to the east, the beginning of the Central Anatolian Plateau appears to have been extensively inhabited during the Bronze Age as populations increased in number on the alluvial plains between intermontane valleys. Most of the Early Bronze Age sites are multilayered mounds indicating continuous occupation, with generally a Late Chalcolithic substratum. In contrast to the Phrygian plains, extensive surveys conducted in the Eastern Marmara all the way down to Kütahya and east along the Porsuk and Sakarya Rivers by Özdoğan⁸ reveal an almost total absence of 4th, 3rd and 2nd millennium BC settlements in the terrain between Lake Iznik and the western Black Sea coast. Almost no Bronze Age sites, large or small, have been recorded so far in the area, which includes rich alluvial plains such as the Sapanca Basin, the Gulf of Izmit and the plains of Adapazarı along the Sakarya River.⁹

Buried or missing Neolithic remains in the highlands of Phrygia

The second half of the 7th and first half of the 6th millennium BC, belonging to the Late Neolithic and Early Chalcolithic horizons in Anatolian archaeology, present a dense settlement pattern in the southern part of the Anatolian Peninsula, mainly in the Konya Plain (Çatalhöyük, West Çatalhöyük) and the Lakes region (Hacılar, Kuruçay) and Cappadocia to the east (Tepecik-Çiftlik, Köşkhöyük), as well as in the Eastern Marmara region in NW Anatolia containing the Fikirtepe, Pendik, Menteşe, Ilıpınar, and

Aktopraklık settlements.¹⁰ In contrast, settlements become fewer and more difficult to recognize in northern parts of Anatolia covering the Sakarya (Sangarios) and Porsuk (Tymbris) river basins as well as the Kızılırmak (Halys) River. Late Neolithic settlements are absent in northern latitudes. It is noteworthy that those found are generally flat settlements. As a result of sparseness of flat settlements, seems to have reflected negative definition as treating every settlement in a tell as a part of it. Therefore, surface indications can be rather misleading.

Matthews, who conducted extensive surveys over a wide portion of Paphlagonia (Ankara province, Northern Central Anatolia) between 1996–2001, comments on the absence of Neolithic settlements:¹¹

Before 1997 no convincing Neolithic sites had been found in northern Anatolia and extremely few Chalcolithic ones also. Was this a genuine absence or an artefact of the sparseness of fieldwork in the region? Only further fieldwork could tell. And if such fieldwork failed to locate Neolithic and Chalcolithic sites then potential explanations for this apparent lack of settlement would need to be considered.

Another opinion is that of Marro,¹² who remarks on the absence of Neolithic sites in Northern Anatolia, stating that either the region was not occupied in the Neolithic, or it was occupied but Neolithic material features have not yet been defined, or that existing Neolithic sites have been covered by recent alluvial deposits.

Besides that, the situation is not so different around the Ankara region (the eastern part following through Phrygia) except in the southern extremes of the region.¹³ Neolithic settlements are present further in the inner parts of Central Anatolia including northern part of Central Anatolia. From Sakarya (Sangarius) in the west through to the Kızılırmak (Halys) basin, 20 years of surveys by Omura¹⁴ have not found a single definitive Neolithic settlement so far, nor any settlement patterns, beyond the salt lake (Tuz Gölü) in the southern extremes of the Ankara area. According to

Omura,¹⁵ who has been conducting systematic surveys since 1986 in the eastern part of Central Anatolia, including the Halys River basin from 1986–2004, Neolithic sites were identified mainly in the southern, northern and eastern parts of the salt lake vicinity between Ankara and the northern part of the greater Konya Plain. No Neolithic habitation is indicated in the north-western part of the salt lake. For the Chalcolithic period, many settlements have been recorded inside and around the Halys Basin.

The Eskişehir and Kütahya area is a case study for early settlements. Silting of the alluvial plains may have covered many small sites. The lowest level of the settlements lies well below the valley surface, 11 m in one case. Sites such as Demircihüyük show mixed Neolithic and Early Chalcolithic material similar to Neolithic Period Çatalhöyük and Fikirtepe material. Chalcolithic levels were found 8 m under the present surface at Demircihüyük. Depth soundings in the mound indicated 7 m of archaeological deposits buried under the present level of the alluvial plain, with a cultural sequence extending back to the Neolithic Period.¹⁶ The significance of this sequence is self-evident, as, for the first time, it provides clear evidence not only of the chronological position of the Fikirtepe culture as the earliest Neolithic culture of Eastern Marmara, but also of its presence in the Central Anatolian plateau.¹⁷

Neolithic settlement features are still sporadically found on the Eskişehir and Kütahya plains that form a large expanse within inner Western Anatolia. According to Efe's surveys, only two settlements with stray Fikirtepe-type finds have been found in Kütahya province; Fındıkbaşı in the Upper Porsuk region connected to the Phrygian valley, and Akmakça, located in Yeni Gediz in a more southern valley far from the traditional Phrygia region. Also recorded in the Efe survey,¹⁸ one site (Kütahya) which yielded distinct examples of Fikirtepe culture of Eastern Marmara has been detected. Findik Kayabasi in the Upper Porsuk valley, near Fındık village north of Kütahya, is the only Neolithic

settlement in the area. The flat and probably small settlement was discovered on a slope of a large massif with homogenous Neolithic material that has S-profile gray and brown burnished material with one Fikirtepe-type cult table fragment as well as a flake lithic industry with retouching on some pieces.¹⁹

However, in recent years, Early Neolithic finds were better understood at Keçiçayırı, an open-air settlement in the highlands of Phrygia. In the course of Efe's survey, numerous prehistoric sites were uncovered dating from pre-pottery Neolithic to the Iron Age. Among the sites of primary importance is Keçiçayırı (Seyitgazi, Eskişehir province), which revealed a unique assemblage typologically assignable to the Aceramic period, similar to that of Central Anatolia. Among the finds at Keçiçayırı are pressure-flaked arrowheads resembling those known from Central Anatolian pre-pottery sites, which are indicative of an early expansion of Neolithic communities towards the west. After three years of excavations primarily aimed at finding Neolithic settlements in the valley, the project found no architectural context in the Neolithic level, only a Neolithic ceramic deposit underneath an Early Bronze II house floor that is a part of a hill-fort settlement. The ceramic assemblage is similar to 7th millennium BC settlements such as Çatal Höyük, Konya Plain (levels VII and VI), Er Baba, Konya (levels III–II) and Bademağacı, Burdur province (Pisidia).²⁰

A new prehistoric location was also recorded on a hilltop area called Balkayası in the volcanic hills of Sivrihisar (eastern Eskişehir province) during short expeditions between the years 2005–7 by the Archaeology Department of Anadolu University and Eskişehir Archaeology Museum (Fig. 57.2).²¹ A more intensive survey was also carried out in 2007 by a small team from Anadolu University on behalf of Eskişehir Archaeology Museum. A panel of rock painting was accidentally found at Balkayası in 2005, and is the only prehistoric rock painting found in Central Anatolia so far.²² Actually, the rocky hill region is located in a very

commanding position with water springs in contrast to the treeless steppe-like environment today. The painting, in a rock-cut niche on a cracked granite surface, has been digitally filtered to provide clearer details. The panel consists of 12 horses and one human figure with arms raised upward and some unidentified figures. The painting was found on a high facade that is part of a possible rock-cut sanctuary on top of the rocky hills of Sivrihisar.²³ The area is reminiscent of a vast rocky landscape similar to the Latmos area in South-West Anatolia Muğla province (traditional Caria Region). Similar rock-cut settlements have been found in the Bafa-Latmos area, with dozens of rock paintings dated to the Chalcolithic period. In one remarkable part of Latmos, 60 locations, generally small rock shelters, were found during the Deutsche Archaeological Institute (DAI) expeditions in late 1990s with hundreds of rock paintings made with ochre.²⁴ The composition of the Balkayasi painting recalls the Latmos paintings with 20 animals defined as horses with one human figure and other unidentified features. Relative dating has determined that they belong to the Chalcolithic period.



Figure 57.2. Balkayasi with rock paintings.

In addition to the rock painting, some dispersed remains with flintworking scatters have been found on the paths between summits within a half-km diameter area around the rock shelter; the technology shows similarities with Late Neolithic features. Some portion of the lithics are obsidian and have microlithic character. Many flint and obsidian scatters have been found, and

while two pieces have been clearly defined as Middle Paleolithic, the majority of the pieces, including some pressure flaked blades, have been dated to the Neolithic period. The ceramic material discovered with the rock painting has shown that the painting is datable to the Early or Middle Chalcolithic. The Balkayası habitation perched on rocky hilltops suggests that sites at relatively high altitudes could be a feature of the Neolithic landscape. At present, this notion appears to be missing from the research agendas of many archaeological surveys.

Chalcolithic period and Porsuk culture settlements

According to Düring,²⁵ the evidence from inner Western Anatolia between 5500 and 3000 BC suggests small, less complex societies, fitting the idea of an eventless and unimportant period. This is probably considered as one of the main reasons why the Chalcolithic has been poorly investigated in Anatolia. The chronology of assemblages is often problematic. In survey reports, sites are dated to the “Chalcolithic” as if this were a precise label for a short time period, rather than a poorly known era lasting over two and a half millennia.

In effect, the question of what happened in Asia Minor during the Middle Chalcolithic (5500–4000 BC) has been avoided, and discussion has focused mainly on the Early Chalcolithic and Late Chalcolithic as forerunners of Bronze Age cultures.²⁶ The Demircihöyük excavations at the northwest extremity of the Eskişehir plain gave us evidence of the first appearance of Chalcolithic cultures, with the recovery of painted Early Chalcolithic pottery of the Hacılar style from the South Anatolian Plateau (Burdur).

According to Özdoğan,²⁷ defining the Middle Chalcolithic period of Central and Western Anatolia is problematic. During the Late Neolithic and Early Chalcolithic, the number of alluvial sites increased considerably, especially in the western parts of the plateau from Cappadocia to the Aegean coast, with a common use

of red burnished pottery, mostly with painted designs, particularly in the second half of the 6th millennium BC. However, at the end of the 6th millennium BC, there seems to have been a cultural break marking the beginning of the Middle Chalcolithic period. By the beginning of the Middle Chalcolithic period in Central and inner Western Anatolia, with the exception of certain territories of Cappadocia, mound sites in the flooded valleys seem to have been abandoned and the sites of the succeeding period were mostly located either on hilltops or terraces overlooking valleys.

As most of the Middle Chalcolithic settlements were short-lived, occasionally changing location, they did not develop into easily-detectable mounds. The insubstantial nature of these sites, unlike traditional tell formations, many of which were discovered more or less by accident, is one of the major reasons why the 5th millennium BC is considered so poorly known, and how, in earlier years, the presence of the Middle Chalcolithic was overlooked in Western Anatolia.

Orman Fidanlığı, excavated between 1992 and 1994 by T. Efe,²⁸ is a typical site of the Porsuk culture in Phrygia during the Chalcolithic period (Figs 57.3–4). The site is located on a steep, rocky hillside just near the Porsuk River. The natural terraces on the cliff were mostly settled. This is the most systematically investigated and published of all 5th-millennium sites in North-West Anatolia. Its discovery by Eskişehir Archaeology Museum was a lucky coincidence during construction of a highway. Site deposits do not exceed 150 cm and in some places are no deeper than 1 metre. They were covered with 2 to 10 metres of eroded material that were removed during road construction works.²⁹ It is estimated that at the time of the prehistoric settlement, the level of the riverbed must have been at least 20 m lower than at present.³⁰

A total of seven layers of continuous habitation from Early Chalcolithic to Late Chalcolithic (Phase VII) have been identified at the site. Similar to sites in the Troad, Orman Fidanlığı has a

relatively shallow level of cultural deposits, not exceeding 1 metre in thickness. No radiocarbon samples have been taken from Orman Fidanlığı for dating; both Level 1–5 and Level 6–7 assemblages have been dated by comparison with sites in the surrounding region. There are parallels between the ceramics and figurines of Level 1–5 at Orman Fidanlığı with those of Levels 5A/5B at Ilıpınar.³¹ However, the Orman Fidanlığı excavations show that the transition between Early and Middle Chalcolithic probably did not have a break in Phrygia. According to Düring,³² the material of Orman Fidanlığı postdates the Chalcolithic phases at Ilıpınar. It is possible to date Orman Fidanlığı Levels 1–5 to either the late 6th or early 5th millennium BC. The latest Level 6–7 assemblages at Orman Fidanlığı are often dated to the end of the Middle Chalcolithic, approximately 4500–4000 BC, on the basis of parallels with Yarımburgaz Cave 2, Yazır Höyük, and İkiztepe on the central Black Sea coast. This period, which is conveniently known as “Vinca”, developed through stages grouped under terms such as “proto-Vinca” or “Karanovo III” in the Balkans, and is now under discussion on the Anatolian side of the Marmara region.³³ Although the excavations at Orman Fidanlığı have been systematic and have produced detailed documentation and publication, more absolute dating of stratified levels is necessary to compare material with the many ceramic styles of the 6th millennium BC, a time when different ceramic traditions emerged in the Eskişehir plain.

Given the lack of clear features and the fact that the excavated strata are on a rocky slope, it is likely that the main Orman Fidanlığı settlement spread towards the Porsuk River, now under the highway to Eskişehir. Architectural or deeper spatial features consisted of poorly constructed stone walls, most of which probably served to shore-up terraces. Hardly any clear features were found in the Orman Fidanlığı excavations, two exceptions being an apsidal structure with stone walls measuring about 2×3 m on the interior and a fragmentary oven associated with a

surface (Fig. 57.3).³⁴

Besides Orman Fidanlığı, one of the earliest settlements belonging to the Chalcolithic Porsuk culture is Asmainler, first discovered by T. Efe near İnli village in the eastern Kütahya province.³⁵ Here there is a massive rock platform with Byzantine era rock dwellings on a steep face that falls abruptly down to a stream. The prehistoric settlement is attested by a very shallow layer of deposits on the flat summit of the rock as well as by a probably more substantial deposit on the steep slope which blankets the rock face at the north end of the cliffs.³⁶

Another settlement, probably the latest in the Chalcolithic horizon of the Porsuk Region, is Keskaya, located roughly 15 km southwest of Eskişehir.³⁷ It is situated 2.5 km east of the village of Gökcekışık in the Upper Porsuk valley on a bend of the Porsuk River leading to the west. The settlement has only a thin layer, deposited as a bothros upon a rocky hill, which creates the impression of a mound.³⁸



Figure 57.4. View of Orman Fidanlığı from the top of the hillside looking over the Porsuk Valley.

The small settlement mound variously called Kanlıtaş or

Kanlıkavak is located near the village of Asagi Kuzfindık at the edge of a mountainous region almost on the border with Kütahya province (Fig. 57.5). This is probably the largest mound and best preserved site representing the Porsuk culture. The settlement presents material resembling the assemblages of the Early, Middle and Late Chalcolithic habitations at Orman Fidanlığı along with EBA remains on its eastern slopes. The mound is situated in a long valley which is over 8 km long (Kuzfindık). Between the road and the stream it follows, the mound appears to lean against a sharp outcrop of rocky cliffs which rise as if they had been spewed upward by the stream. The mound is approximately 150 m in diameter and over 15 m high. The actual thickness of the cultural deposit may be somewhat less, depending on the configuration of the rock upon which the settlement rises.³⁹ Nevertheless, it seems fairly certain that the principal phase of habitation on the mound corresponds to the excavated site of Chalcolithic Orman Fidanlığı in Eskişehir. It is clear that from the Early Chalcolithic onward, certain ceramic characteristics existed over the Upper Porsuk region, stretching from the bend of the Porsuk River north to Bilecik and southward at least as far as the area north of Kutahya. Among the artefacts recovered by a surface survey in the area (see below) was an assemblage of apparently discarded broken marble bracelet (or ring) pieces, noteworthy for their number (over three dozen) (Fig. 57.6). They are in various stages of manufacture ranging from blanks to nearly complete products, with some associated production tools.⁴⁰ The presence of a marble bracelet industry in the area during the Chalcolithic period was already known from Orman Fidanlığı.⁴¹ The general pattern of raw material exploitation (e.g. marble) seen in examples here and at Orman Fidanlığı supports the hypothesis that local resources were utilized for varying degrees of repeated production and specialized craftsmanship on site.

The Kuzfindık valley in which the Kanlıtaş settlement is located is in the westernmost part of Eskişehir province close to the İnönü

valley, a western extension of the Upper Porsuk valley. This area is at the edge of North-West Anatolia between Central Anatolia and the Marmara region, where sites tend to diminish or be flat settlements. Surveys conducted in 2008 and 2009 focused primarily on the Kanlıtaş mound and its environs within a 6 km-diameter.⁴² An area of almost 30 sq km was surveyed intensively without any fixed transects, covering all terrain on which team members were able to walk. No Neolithic or Chalcolithic settlement feature could be identified in the area, which included a large part (over 20 sq km) of the İnönü valley.

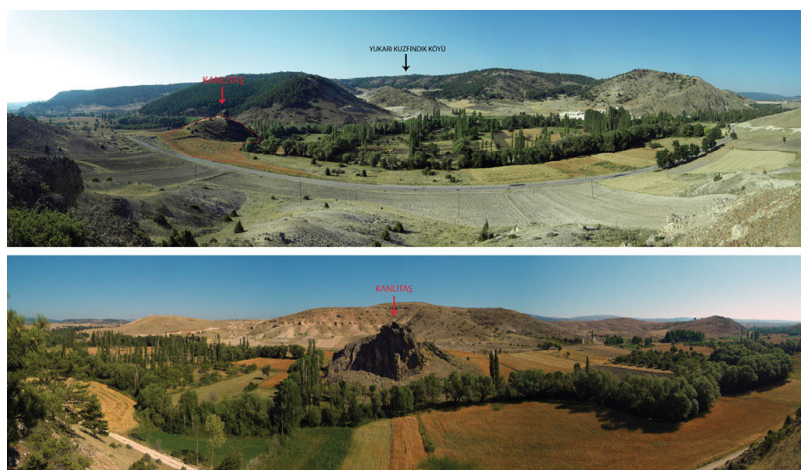


Figure 57.5. View of Kanlıtaş Höyük (Eskişehir) in the Kuzfındık Valley.

The results of another survey in Phrygia are noteworthy. The survey around the Phrygian capital of Gordion at the junction of the Sakarya (Sangarius) and Porsuk rivers in western Ankara was conducted by the Gordion Team from the University of Pennsylvania in the 1990s.⁴³ This study within the Sakarya basin suggested that 3 to 5 m of sediments had been deposited in the Sakarya floodplain near Gordion, indicating that large areas of the adjacent hills had been eroded. Due to these changes over the last 2000–4000 years, archaeological sites of earlier periods have been

either eroded or buried. Choices concerning the area to be surveyed were informed by which landscape surfaces had remained relatively stable over the last 4000–6000 years, and which had been either eroded away or buried.⁴⁴ Not a single Neolithic settlement or any off-site pattern was recorded. Regarding the Chalcolithic period, only one site in the survey area was found; this is located relatively high in the catchment (ca. 850 m), near the base of a basalt ridge. Like an EBA (and Chalcolithic?) site downslope, it is no longer immediately adjacent to a spring. Soil evidence suggests that a spring that had existed next to the site during its occupation has since retreated, as the water table dropped. It is proposed that these isolated sites in upland areas around Gordion dating from the Chalcolithic through to the EBA were formerly more vegetated and had more active, perennial streams and springs.⁴⁵

Some remarks on settlement dynamics

Settlement patterns depending on probable palaeoclimatic conditions provide us with indirect, or proxy, information about environmental and land use changes, particularly when viewed in combination with geomorphological data. The isolation of sites suggests that from the Chalcolithic through to the Early Bronze Age, upland areas were more vegetated and had more active perennial streams and springs. Forest clearance and ploughing commonly lead to a recession of the water table, the retreat of streams and the loss of perennial stream flows, factors which could accelerate the abandonment of these sites. A rise in the water table in the 5th millennium BC is another possibility, especially in high-slope settlements such as Kanlıtaş and Orman Fidanlığı in Eskişehir. The level of the water table would not have remained constant throughout the settlement life of a tell, spanning at least one millennium. It rose and fell in a series of vacillations. During episodes of low water table, the land around the tell would be dry and usable for agriculture, grazing or other purposes. According to

Brown,⁴⁶ the recurrence interval of flooding can never be assumed to have remained constant. This would not automatically necessitate the shift or abandonment of a settlement, but merely adaptation to the changed local conditions. Soil cores taken around settlements may help us identify the relationship between river flooding and tell occupation, or how variations in water levels affected the number of settlements in its catchment area. Bailey's work⁴⁷ on tell formation in 5th millennium BC north-western Bulgaria is admirably comprehensive in that it covers all aspects and inter-relationships between subsistence, palaeomorphology and settlement patterns, with detailed palaeomorphological evidence from the north-western part of Bulgaria.



Figure 57.6. Unfinished marble bracelet fragments from Kanlıtaş.

The topography of Phrygia comprises wide valleys cut by sometimes high hilly reliefs and the Porsuk River with its many

tributaries, especially in the western part of the region. This complex topography seems to have promised many habitation types; both farming and herding as well as hunting. Transhumance and pastoralism as well as farming practices seem to have played a dominant role in Chalcolithic settlements.⁴⁸ The archaeologically ephemeral character of pastoralism undoubtedly means that this component of the economy is under-represented. While occupation sites demonstrate population concentration, the lack of occupation sites, by contrast, may mean a more dispersed population in the form of pastoral camps or small villages. Unfortunately, we do not yet have a clear picture of these subsistence changes. Systematically collected empirical data addressing agricultural and pastoral strategies is an even harder issue than land use. Secondary products dynamics, especially important in the 5th millennium BC Balkans, with the introduction of milk products and more intensive strategies of agricultural production, cannot be understood alone with fragmentary evidence.

One causal factor could be the limited depth of these sites, which has been linked with wattle-and-daub building technologies, a type of construction that would have resulted in less building debris and therefore less substantial deposits. In the earlier periods of the settlements, the shift to timber and then back to stone and mud-brick is another possible factor, being a practical solution to the creation of new settlements in wooded environments. Woodland clearance for settlement and agriculture would have made it practical to construct flimsy post frame or wattle–daub buildings.

There are a large number of settlements that show evidence of brief or seasonal occupation, especially in the 5th millennium BC. At Ilpınar 5B in Bursa, a series of sunken huts have been interpreted as seasonally occupied structures. In the Troad, at sites such as Kumtepe, Besik-Sivritepe, and Gülpınar, dated to the first half of the 5th millennium BC, settlement remains are shallow and buildings seem to be generally wattle-and-daub structures. Here,

the possibility that sites may have been occupied briefly must be considered. The same features are also seen in other 5th millennium BC settlements, including Toptepe (Thracian coast), Bağbası (Lycia), and Canhasan (Level 1) in Southern Central Anatolia. The ephemeral nature of such settlements may be linked to a mobile way of life, and some sites such as Canhasan and Bağbası were used by pastoral nomads.⁴⁹

In contrast to semi-sedentary, ephemeral settlements, Güvercinkayası in the volcanic Cappadocia region in south-eastern Central Anatolia, has a proto urban character. With its setting on a high rock terrace, it presents an alternative for comparative discussion. Güvercinkayası, first documented in 1994 during the Aksaray, Nevşehir and Niğde survey and excavated since 1996, could be the best example of any Porsuk Chalcolithic settlement type, such as that already seen in Kanlıtaş and Orman Fidanlığı. Covering an area of approximately 3 ha., the settlement can be divided into two parts. The first is a shallow mound on a high terrace of the rock massif, forming an upper settlement (C14) dating from ca. 5200–4750 BC, with cliffs rising up to 16 m to the west. The second is on a slope on a plateau of the massif, which is surrounded from the south, extending like a fan.⁵⁰ The geological formation of the rock dictated the limits as well as the architectural layout of the Güvercinkayası settlement. Three temporary Middle Chalcolithic layers are an excellent example of real planning and social organisation. The uniformly furnished single room attached houses are organised in well-defined blocks similar to those at Köşk-Höyük, another Neolithic–Early Chalcolithic settlement in the same area.⁵¹ A massive stone citadel on top of the hill, the earliest in Asia Minor, besides having domestic residences, also gives Güvercinkayası a proto-urban character. According to the Gülçur⁵² surveys in the area around Güvercinkayası, nine other Middle Chalcolithic sites were documented. Oluklununkaya and Büyük Dellen at Demirci (Gülağac-Aksaray), and Mercimekkayası and Kumluelma near

Gösterli (Niğde) are located on rocks similar to Güvercinkayaşı. This phenomenon of habitats shifting to higher altitudes on naturally protected rock outcrops linked to old migration roads appears to be a general tendency from the Early to Middle Chalcolithic period in Cappadocia.⁵³

An alternative factor in the absence of settlements, and even for their abandonment, could be tectonic activities and east-west fault lines. The Eskişehir Graben or Fault Zone (EFZ), extending from Bursa to the west of Tuz Gölü and passing through the study area with a north-west to south-east orientation⁵⁴, is an important regional tectonic factor both in geological and geomorphological formations. Another graben, the Kütahya Graben, lies parallel to the Eskişehir fault zone. In particular, the Upper Porsuk area in Eskişehir province lies between these fault zones, still active in recent times, which could have been a factor in the abandonment of prehistoric settlements in Phrygia region throughout the Holocene period. However, there is no study yet correlating tectonic activities and early settlements in the Eskişehir-Kütahya area.

Moreover, large debris flows (*i.e.* landslides) due to earthquakes in the highland terrain of Phrygia (one of its most prominent features), and antecedent precipitation with humid conditions in some Holocene epochs, could be a factor in the abandonment of sites or in their becoming buried under large, accumulated fills. Gigantic debris flows in one region (the İnönü area on the north-west edge of the Eskişehir and Porsuk basin) during Holocene is another feature to discuss.⁵⁵ Depositions, such as debris flows in the form of colluvial fans, can preserve sites but also render them invisible, like the site at Orman Fidanlığı. This is likely to be widespread in the lower part of the floodplain for settlements which were set up on the floodplain, or seasonal, one-period flat settlements.

Conclusions

Major factors became the differential “archaeological visibility” of particular groups of materials, especially in different periods. Therefore, the repeatability of surveys, as well as excavations with stratigraphical documentation, is a major advantage, yet there are very few examples where archaeologists actually repeat the survey to test the validity of their data. However, in regions where systematic surface surveys have been completed, surface sites are often more abundant than mound sites.

Figures compiled by Düring⁵⁶ comparing the number of Chalcolithic and Early Bronze Age sites are noteworthy. For the Middle and Late Chalcolithic, a total of 68 sites have been excavated in Central and Western Anatolia, which can be contrasted with a total of about 163 excavated sites dating to the Early Bronze Age. The difference between the two periods is even more marked if we take into account the duration of these periods: per Chalcolithic millennium, there are about 27 excavated sites in contrast to 163 Early Bronze Age sites.⁵⁷ This paper is a survey of ideas deduced from Anatolian evidence; many of them are not conclusive, as more data is needed to draw a convincing picture. Moreover, it is possible to argue for and against all of these issues. Nevertheless, we are now at a stage to question some concepts that hitherto looked indubitable.

Finally, these are preliminary remarks on available data from surveys and limited excavation data from Phrygia, excluding the Early Bronze Age period. Drawing a general picture is not an easy task. Evidence is still very fragmentary, and the data are very recent and need time to develop. Here I have offered some generalisations. Each excavated site offers various pieces of evidence that do not fit in with the general statements in this article. Perhaps the 6th and 5th millennia BC settlements currently termed “Chalcolithic” present more variable choices in settlement patterns in the complex topography of the Phrygian region than we had anticipated.

Notes

1 I am grateful to M. Bilge Baştürk from Anadolu University for designing the map and T. Takaoğlu from Çanakkale Onsekiz Mart University for inviting me to the conference in Athens that motivated this work. Without the cooperation and interest of M. Dursun Çağlar (1956–2014), former director of Ekişehir Eti Archaeology Museum, the project would not be possible. I also owe thanks to my team members from 2006–2013 during research on the Balkayası and Kanlıtaş Höyük projects conducted in Eskişehir.

2 Özdoğan 2003b, 330.

3 Polat 2008, 8; Şahin 1986.

4 Chaput 1941; Haspels 1971.

5 Özarslan 2010, 9.

6 Eskişehir İl Çevre Durum Raporu 2008.

7 Chaput 1941, 6–7.

8 Özdoğan 2003a, 112.

9 Özdoğan 2003a, 112–13.

10 Rosenstock 2005, 226.

11 Mathews 2009, 10.

12 Marro 2000, 951–3.

13 Aydın *et al.* 2005, 39–40.

14 Omura 1996; Omura 2006.

15 Omura 2006, 71.

16 Seeher 1987c.

17 Özdoğan 2003b, 333.

18 Efe 1996b.

19 Efe 1996b, 107, fig. 4. 1–5.

20 Efe *et al.* 2011, 13–14.

21 Balkayası is a hilltop area in the eastern Sivrihisar hills. However, the larger area and its environs is called Böğürtlen, from the nearest village on the plateau.

22 Türkcan 2005.

23 Türkcan 2005; Türkcan 2007, 32.

24 Peschlow 2006; Peschlow 2013.

25 Düring 2011, 202.

26 Düring 2011, 203.

27 Özdoğan 2003b, 352.

28 Efe 1996a; Efe 2001.

29 Efe 1990a.

30 Efe 2001.

31 The vessels of the Middle Chalcolithic period having black or blackish surfaces are considerably larger, and carinated profiles are common. Most of the decoration is executed either by incision, impression or burnishing techniques. However, the decorative techniques and motifs of Orman Fidanlığı differ from those found at Ilıpınar and other Fikirtepe sites (Efe 2000; Efe 2001).

32 Düring 2011.

33 Efe 1990a; Efe 2001.

34 Efe 2001, 15–17.

35 Efe 1990b, 32.

36 Efe 1990b, 32.

37 Efe 1990b, 36.

38 Efe 1990b, 36.

39 Geophysical studies of the Kanlıtaş mound conducted in 2012 by Ankara University at three different elevations determined a 1 and 1.50 m maximum depth on the summit and on the slopes. However, in the western part of the fields which surround the site, the depth of the archaeological deposit recovered is deeper than 3 m, with many rectangular (probably wall) forms.

40 Baysal *et al.* 2015.

41 Ay-Efe 2001.

42 The survey covered an area of approx. 40 sq km including terrain flooded by streams and disturbed by a dam situated on part of a tectonic zone. New sites consisting of two flat settlements and two mounds were discovered. The chronological evidence found in the survey area ranged from Lower Paleolithic scatters to small, rural Medieval era mound settlements (Post-Seljuk and 12–5th century Ottoman) (Türkcan 2011b). The survey gave clues regarding changing settlement models from the Chalcolithic through to the Early Bronze Age and resource use within the catchment area of Kanlıtaş Mound (Türkcan 2007; Türkcan 2011a).

43 Kealhofer 2005.

44 Kealhofer 2005, 140.

45 Kealhofer 2005, 145.

46 Brown 1997, 39.

47 Bailey 1999.

- 48 Özdoğan 2003a; Orton 2012.
- 49 Düring 2011, 254.
- 50 Gülçur 2012, 222.
- 51 Gülçur 2012, 224.
- 52 Gülçur 2009, 324–5; Gülçur 2012, 236.
- 53 Gülçur 2012, 236.
- 54 Altunel and Barka 1998.
- 55 Ocakoğlu *et al.* 2009, 956–7.
- 56 Düring 2011, 257.
- 57 Düring 2011, 257.

Bibliography

Abbreviations

AA Archäologischer Anzeiger

AAA Athens Annals of Archaeology

AAS Annales archéologiques arabes syriennes

AB Archaeologia Bulgarica

AccChemRes Accounts of Chemical Research

ActaArch Acta Archaeologica (Copenhagen)

ActaArchHung Acta Archaeologica Academiae scientiarum Hungaricae

ActaAthen Skrifter utgivna av Svenska Institutet i Athen (Acta Instituti Atheniensis Regni Sueciae) (formerly SkrAth)

AD Archaeological Dialogues

AegAeg Aegaeum: Annales d'archéologie égéenne de l'Université de Liège

AegArch Aegean Archaeology

AEM Archaeologiko ergo Makedonias kai Thrakis

AETSE Archaeologiko ergo Thessalias kai Stereas Elladas

AJA American Journal of Archaeology

AkkAkk Akkadianica: Périodique bimestriel de la Fondation assyriologique Georges Dossin

AM Mitteilungen des Deutschen Archäologischen Instituts, Athenische Abteilung

AmBehavSci American Behavioral Scientist

AmerAnt American Antiquity

AmAnthrop American Anthropologist

AnaAnat Anatolia Antiqua

AnaAnat Anatolu: Revue annuelle des études d'archéologie et d'histoire en Turquie

AnaAnat Anatolia: Revue annuelle de l'Institut d'archéologie de l'Université d'Ankara

AnaAnat Anatolica: Annuaire international pour les civilisations de l'Asie

antérieure

AnaStatolian Studies

Anna Arvanthropology

Annual Review of Ecology and Systematics

Antiquity: A Quarterly Review of Archaeology

*AP*Acta Praehistorica et Archaeologica

AR Archaeological Reports (supplement to JHS)

Archaeometry: Bulletin of the Research Laboratory for Archaeology and the History of Art, Oxford University

Archaeological and Anthropological Sciences

Archaeologia Cypria

Archäologikon Deltion

Archaische Ephemeris

Archaeological Journal

Archiv für das Biologische Korrespondenzblatt

Archaeological Review from Cambridge

ArEArMilen Euboikon Meleton

ASAA Annuario della Scuola archeologica di Atene e delle Missioni
italiane in Oriente

ASTArastirma Sonuclari Toplantisi

Baltic Pontic Studies

Bulletin of the Ancient Orient Museum

BA British Archaeological Reports

British Archaeological Reports, International Series

Bulletin of the American Schools of Oriental Research

Bulletin of the American School of Prehistoric Research

BCF Bulletin de correspondance hellénique

BellEten: Türk tarih kurumu

Bericht der Römisch-Germanischen Kommission

BICS Bulletin of the Institute of Classical Studies of the University of London

BMCR Bryn Mawr Classical Review

Boreas: Münstersche Beiträge zur Archäologie

BSAAnnual of the British School at Athens

Cambridge Ancient History

CA Cambridge Archaeological Journal

Cambridge Journal of Economics

Colloquium Anatalocum

~~Corn~~ Corinth: Results of Excavations Conducted by the American School
of Classical Studies at Athens
~~Creta~~ Creta Antica: Rivista internazionale di studi archeologici, storici ed
epigrafici
~~Cretika~~ Cretika chronika: Keimena kai meletai tes kretikes istorias
~~Cretan~~ Cretan Studies
~~Curent~~ Current Anthropology
~~Dacia~~ Dacia: Revue d'archéologie et d'histoire ancienne
~~Docum~~ Documenta Praehistorica
~~EAE~~ Ephimeris Archaialogikis Etaireias
~~E:Co~~ Emergence: Complexity and Organization
~~EJA~~ European Journal of Archaeology
~~EJM~~ European Journal of Mineralogy
~~Ergon~~ Ergon tes Archaialogikes Etaireias
~~ÉtCré~~ Études crétoises
~~ETC~~ ETO Dergisi
~~eTopoi~~ Etopoi: Journal of Ancient Studies
~~EurAsia~~ Eurasia Antiqua
~~EurPhys~~ European Physical Journal Plus
~~Franch~~ Excavations at Franchthi Cave, Greece
~~Germania~~ Germania: Anzeiger der Römisch-Germanischen Kommission des
Deutschen Archäologischen Instituts
~~Glasnik~~ Glasnik Srpskog arheološkog društva
~~HAG~~ Hrvatski arheološki godišnjak
~~Hesperia~~ Hesperia: The Journal of the American School of Classical Studies
at Athens
~~Historical~~ Historical Archaeology
~~Hunt~~ Human Ecology
~~IntJ OsteoArchaeol~~ International Journal of Osteoarchaeology
~~Iraq~~ Iraq, published by the British School of Archaeology in Iraq
~~IstMit~~ Istanbul Mitteilungen
~~JArchAnthropol~~ Journal of Anthropological Archaeology
~~JArchMethodTheor~~ Journal of Archaeological Method and Theory
~~JArchSci~~ Journal of Archaeological Science
~~JAS~~ Journal of Archaeological Science
~~JCulturalReligTheor~~ Journal of Cultural and Religious Theory
~~JEurArch~~ Journal of European Archaeology
~~JFA~~ Journal of Field Archaeology

JHE Journal of Human Evolution
JIE Journal of Indo-European Studies
JMA Journal of Mediterranean Archaeology
JMatCult Journal of Material Culture
JMAA Journal of Mediterranean Anthropology and Archaeology
JMtEc Journal of Mountain Ecology
JQS Journal of Quaternary Science
JRad ~~Journal of Nuclear~~ Radioanalytical and nuclear chemistry
JRAI Journal of the Royal Anthropological Institute
JSocArch ~~Journal of~~ Social Archaeology
JVolGeoRes ~~Journal of~~ Volcanology and Geothermal Research
JWP Journal of World Prehistory
Kritika ~~Kritika~~ Chronika
KST Kazı Sonuçları Toplantısı
Levant ~~Levant~~: Journal of the British School of Archaeology in Jerusalem
 and the British Institute at Amman for Archaeology and History
MAA Mediterranean Archaeology and Archaeometry
Macth ~~Macth~~ Acta Archaeologica
Miscellanea Graeca
MMS Metropolitan Museum Studies
MoDA ~~MoDA~~ Monographs of the Danish Institute at Athens
Monumenti antichi
NEA Near Eastern Archaeology (formerly BiblArch)
OJA Oxford Journal of Archaeology
ÖJh Jahreshefte des Österreichischen archäologischen Instituts in Wien
ÖJhBeibl Jahreshefte der Österreichischen archäologischen Instituts in Wien,
 Beiblatt
Opuscula Atheniensia
PA Preistoria Alpina
Pharos ~~Pharos~~: Journal of the Netherlands Institute at Athens
PNAS Proceedings of the National Academy of Sciences
PonHortica ~~PonHortica~~: Studii si materiale de istorie, arheologie si muzeografie,
 Constanta
PPS Proceedings of the Prehistoric Society
Praktika tes en Athenais Archailogikes Etaireias
Praktika tes Akademias Athenon
Przegląd archeologiczny
PZ Prähistorische Zeitschrift

~~Quaternary International~~
~~Quaternary Geochronology~~
~~Report of the Department of Antiquities, Cyprus~~
~~Research in Economic Anthropology~~
~~Saarbrücker Studien und Materialien zur Altertumskunde~~
~~Scientific American~~
~~Shima: The International Journal of Research into Island Cultures~~
~~Studies in Mediterranean Archaeology~~
~~Studia Acta~~
~~Studi micenei ed egeo-anatolici~~
~~Social Evolution and History~~
~~Sovetskaja archeologija~~
~~Studia Troica~~
~~Studia Albanica~~
~~Studia Balcanica~~
~~Studia Praehistorica~~
~~Tectonophysics: The International Journal of Integrated Solid Earth Sciences~~
~~TJB Türkiye Jeolojik Bülteni~~
~~TÜRKİYE Bilimler Akademisi Arkeoloji Dergisi~~
~~VegAratio: History and Archaeobotany~~
~~World Archaeology~~
~~Zeitschrift für Geomorphologie~~

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Communities in Transition brings together scholars from different countries and backgrounds united by a common interest in the transition between the Neolithic and the Early Bronze Age in the lands around the Aegean. Neolithic community was transformed, in some places incrementally and in others rapidly, during the 5th and 4th millennia BC into one that we would commonly associate with the Bronze Age. Many different names have been assigned to this period: Final Neolithic, Chalcolithic, Eneolithic, Late Neolithic [I]–II, Copper Age which, to some extent, reflects the diversity of archaeological evidence from varied geographical regions. During this long heterogeneous period developments occurred that led to significant changes in material culture, the use of space, the adoption of metallurgical practices, establishment of far-reaching interaction and exchange networks, and increased social complexity. The 5th to 4th millennium BC transition is one of inclusions, entanglements, connectivity, and exchange of ideas, raw materials, finished products and, quite possibly, worldviews and belief systems. Most of the papers presented here are multifaceted and complex in that they do not deal with only one topic or narrowly focus on a single line of reasoning or dataset. Arranged geographically they include both site reports and regional studies and explore a series of key themes: chronology, cultural affinities, and synchronization in material culture; changing social structure and economy; inter- and intra-site space use and settlement patterns, and caves.

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